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POPULAR PHOTOGRAPHY

including CAMERA and AMERICAN PHOTOGRAPHY

WORLD'S LEADING PHOTOGRAPHIC MAGAZINE

Jerry Yulsman of New York took this month's cover picture (of June Elliot) as part of an experiment with fluorescent lighting for color film. The camera he used was a 4x5 Linhof, the lens a 150-mm Xenar f/4.5. Using Ektachrome Daylight Type film with a combination of daylight (from his studio's skylight) and fluorescent tubes, the exposure was 1/2 second at f/5.6. A yellowish filter warmed up the results somewhat.

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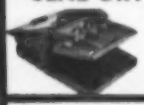

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B&H 172B, f2.5	73.50	7.35
B&H 172A, f1.9 ctd	117.00	11.70
Keystone Olympic f2.5 ctd	45.00	5.00
Revere 88, ctd f2.5	32.00	5.00
Revere 40, ctd f2.5	51.95	5.19

8mm PROJECTORS

B&H Regent 500w, case	102.50	10.25
DeJur 750, 750w	83.80	8.38
Keystone K-66, 750w, case	79.00	7.90
Keystone K-109, 750w, splicer	86.95	8.69
Revere 85, 500w	52.95	5.29
Revere 90, 750w	67.00	6.70

16mm PROJECTORS

B&H 273A, 750w, case	118.50	11.85
B&H 173, 1000w, case	184.50	18.45
Keystone A-82, 750w, case	73.50	7.35
Keystone K-161, 750w, case	87.50	8.75
Revere 48, 750w	94.50	9.45

SOUND PROJECTORS

Ampro Premier 40, Case	395.00	39.50
Bell & Howell Filmo Sound	189.00	18.90
Bell & Howell 285c, Case	447.00	44.70

press cameras

2¼ x 3¼

	Sale Price	Down Payment
Ann Speed Graphic f4.5 KRF Synchro Flashgun	83.50	8.35
Bush, f4.5 CRF	79.50	7.95
B&J, f4.5 CRF	69.50	6.95
Pacemaker Crown Graphic f4.5 Raptar, CRF	147.00	14.70
Pacemaker Speed Graphic f4.5 Ektar, CRF	182.50	18.25

3¼ x 4¼

Ann Speed Graphic, f4.7 ctd Ektar Sync CRF	117.50	11.75
Ann Speed Graphic, f4.5 Raptar Polaroid, CRF	129.00	12.90
Pace Crown Graphic, f4.7 ctd, CRF	138.50	13.85

4 x 5

Ann Speed Graphic, f4.7 CRF	92.95	9.29
B&J f4.5 Tessar, CRE	99.50	9.95
Busch, f4.5 ctd Steinheil, Synchro, focus spot	139.00	13.90
Pacemaker Speed Graphic, f4.7	138.00	13.80
Pacemaker Crown, f4.7, CRF	157.00	15.70

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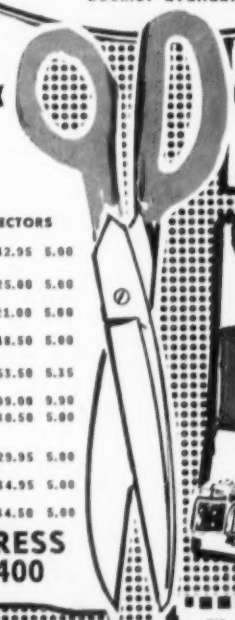

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300w Golde Coronet, case BC	21.00	5.00
500w Kodaslide Signet BC	48.50	5.00
500w La Belle 55 Automatic BC	53.50	5.35
500w La Belle 75, BC, case	99.00	9.90
300w Revere 444 BC	30.50	5.00
300w TDC Mainliner, semimatic, BC	29.95	5.00
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300w TDC Duo 2¼, BC	34.50	5.00

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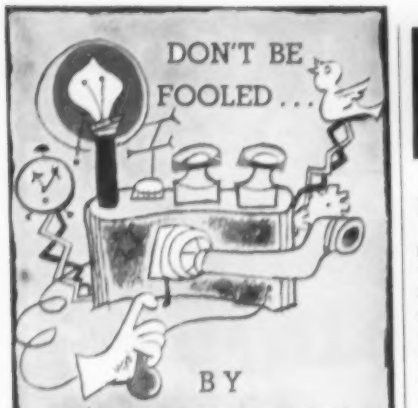

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letters to the editor

New England People-Watcher

In my store on the Main Street of a small New England town I have a show window which has a large bulletin board serving as a backdrop for my window display. One day I discovered a tiny crack in this board, through which I could peep and watch the faces of the people looking at my show window.

Looking through this crack became an enjoyable pastime for me; I was fascinated by the expressions and actions of people unaware they were being watched. Finally it occurred to me that I might be able to get some good pictures of these people. I cut a small hole in the backdrop and inserted a piece of one-way glass (reflecting mirror on one side, transparent on the other). I then set up my 4x5 Graflex on a tripod behind the glass.

Through a glass, lightly

These pictures (*see above*) are some of the best I took in this way. My exposure on Super Panchro-Press Type B was 1/10 second at f/4.5; I found the long exposure necessary because the dark-colored glass cut the light about eight times.

MADISON COOPER
Canaan, Conn.

Liked Our 35-mm Lens Story

Your August story on interchangeable lenses filled one of the penumbral areas of practical photography with a great flood of light. I am sure I am not alone in having gone on for years as an amateur photographer without ever *really* quite understanding the relationship between focal length and camera distance, and their effect on perspective. To my knowledge, no one has done such a complete job of presenting the facts as you did with the middle spread (pages 82-83), both visually and scientifically. And the last series on page 85 demonstrated the crying need for photographers to take seriously the creative uses of shorter- or longer-than-normal focal length lenses—certainly you made plain that there may be definite esthetic advantages in using a different lens, not just because it enables us to take a picture of a far-distant object, or take in a whole room at close distance, but because it enables us to control the importance of almost any picture element.

MARCUS ANGUS
Carmel, Calif.

I wish to compliment your magazine on one of the finest articles on the 35-mm camera I have ever had the pleasure to read—*Interchangeable Lenses* by Arthur Barney. It's well written and hits the spot. I think that copies of the article should be made available to camera clubs all over . . . it might even be made up into an attractive booklet . . .

WALTER S. COUGHLAN
Sebastopol, Calif.

Shutters, Vignetting & Flashlamps

Congratulations on your August issue devoted to the 35mm field—I have found it most interesting.

In preparing an issue such as this, it is easy to understand how a few errors can creep in which usually are of no importance. However, I would like to comment upon an error in Ralph Carroll's article on 35-mm cameras.

In his discussion of shutter types on page 110, Mr. Carroll makes the following statement—"The biggest drawback to this shutter type [between-the-lens] is that it opens, exposing the middle of the negative first, and closes last over the same area. Thus the edges and corners can never get 100 percent as much exposure as the center of the negative."

This statement is incorrect and the error is of importance. It is true that the corners of a picture receive less exposure than the center, but this is true of any camera—irrespective of shutter—because of optical considerations. It is true also that some types of shutters, under some circumstances, can aggravate the condition by vignetting the picture area during all or part of the exposure time. Of the three types of shutters discussed, the between-the-lens type is the only one which does *not* vignette the picture area during its operating cycle. This is the primary reason why it, of all types, is best suited for flash work. The terminology "between-the-lens shutter" presumes that the shutter blades and diaphragm lie in the nodal region of the lens. When so placed, the smallest hole through the shutter and the largest *both expose the entire picture area.* This is so since the shutter blades adjacent to the diaphragm act as a variable diaphragm, changing intensity but not field angle in the same manner as does the diaphragm. As the shutter blades are moved away from the nodal region of

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the lens, they do act as a field stop and the shutter is then termed a "behind-the-lens" type. The degree to which the shutter limits the field during its opening and closing periods depends upon its relationship to the film plane and the diaphragm. The extent to which the shutter affects the exposure of the corners depends upon these factors plus the diaphragm opening and shutter speed selected. It is the behind-the-lens shutter to which Mr. Carroll's statement most accurately applies.

Since the between-the-lens shutter does not vignette the picture, variations in the level of light output and color characteristics of a flashlamp are averaged over all sections of the picture. This is not true with either the focal-plane shutter or behind-the-lens shutter at other than slow speeds, which permit the shutter to be fully opened during the major portion of the flash period. The between-the-lens shutter is therefore to be preferred to other types when using flashlamps or strobe lights because it suffers least from the vignetting problem which Mr. Carroll has erroneously claimed to be its biggest drawback. . . . Congratulations again.

DOUGLAS HARVEY
Rochester, N. Y.

That Nude in the Woods

I love a picture that tells a story. The one of the pink nude on page 78 of your September issue I have all figured out. It's like this:

The pink canopy is just there for looks and ought to be spread on the ground as a tablecloth . . . the parasol doesn't belong because the girl is under a canopy and all are in the shade of trees; no chance of sunburn there . . . the watch

All figured out, but cute anyway

means she has to meet the girls for bridge at three and will you please get the picture over with? Besides, I'm hungry, that leaf is sticking my shoulder, and my fanny is tired squatting on my shoe . . . the high heel shows she often takes long walks in the woods . . .

Two things I can't figure: 1) Where is she going to sit during lunch? 2) Is there any poison ivy there?

P.S. She sure is cute anyway . . .

ROSS H. PORTER
Monrovia, Calif.

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*August, 1955

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tools and techniques

by Norman C. Lipton

A round-up of recent developments and significant trends

Recovering Polaroid Negatives. A method for recovering the fogged and worthless (for printing purposes) negative produced in Polaroid pictures-in-a-minute process is outlined in U. S. patent No. 2,705,676 granted April 5, 1955 (applic. 8/1/50) to E. H. Land and H. G. Rogers of the Polaroid Corp. It is suggested that the silver be bleached out of the fogged negative from which the original positive Polaroid print has been transferred and that a second transfer be made from the negative after the bleaching—by means of a silver complex former-developer bath and a sheet of receiving material. The surface silver halides that have not been consumed in the transfer of the original positive print are deposited as a negative image in the second transfer. . . . A second recent Polaroid patent (No. 2,707,150—applic. 8/5/52 granted April 28, 1955 to E. H. Land) describes an additive color transfer film. Here, an additive color screen comprised of dyes soluble in an alkaline developer is printed over a panchromatic negative emulsion. The print-receiving material has in its top layer mordants, preferably silica, for the dyes to permit the negative screen to be transferred in register with the positive image when the processing fluid is spread between the negative and print image receiving sheets.

Light Values Scales. Despite the head-shaking of many sophisticated professional photographers who saw no rhyme or reason to the numerical light-value scale (LVS) and cross-coupled shutter speed and lens-aperture controls introduced by F. Deckel in the No. 0 Synchro-Compur shutter in 1954, the system is gaining an enthusiastic following here as well as abroad. We recently reported Deckel's plan to have the entire Compur shutter production switched over to this simplified exposure determination and control system which is incorporated in current Rolleicord and *f*/3.5 Rolleiflex production as well as in the Kodak Retina II-C and III-C, the Ansco Super Regent, and various other cameras of German origin.

The calibration of Compur shutters in an equally spaced linear progression of shutter-speed and lens-aperture values is at odds with the current ASA standard on lens-aperture calibration. Moreover, the arbitrary scale of "light values" selected by the influential Deckel concern has caused many camera manufacturers and a number of alert consumers to wonder whether a more logical and useful scale of light values might not have been selected. An interesting consumer reaction was published on page 134 of the June 1955 issue of *The Photographic Journal*, official publication of the Royal Photographic Society of Great Britain, over the signature of J. S. Burkitt of New Norfolk, Tasmania, an individual who had concerned himself with the matter in 1946.

Mr. Burkitt proposes a system in which (1) the relatively confusing *f*-numbers would be discarded in favor of a lens-aperture scale of numbers from 10 to 0 where the aperture number would be equal to 10 minus $2\log_2$ (*f*-number), and (2) the progression of eleven shutter speeds from 1 to 1/1024 sec (each speed double the preceding one) would be designated with shutter numbers from 10 to 0. Thus, all exposures between 1/1032 sec at *f*/32 and 1 sec at *f*/1 differing by a ratio of 2 could be expressed by a series of whole numbers from 0 to 20. In the light of the logarithmic derivation of the shutter and aperture numbers, the sum of the two represents the exposure "value" (the product of the intensity of the illumination reaching the film and the time). Assuming the use of a simplified exposure meter calibrated from 20 to 0 in Mr. Burkitt's exposure-value numbers, any combination of aperture numbers and shutter numbers adding up to the indicated meter reading would produce a correct exposure — the selection being subject to action-stopping and depth-of-field considerations.

Mixed-grain Color Emulsions. Recent U.S. patents granted to Kodak research and development workers confirm E-K's interest in single- and double-layer color films of the "mixed grain" type first reported by our British Correspondent, George Ashton, in the April 16, 1954 issue of the *British Journal of Photography* (T&T October 1954). These color materials differ from conventional multi-layer emulsions in that two or more differentially color-sensitized families of silver-halide grains are incorporated in a single emulsion layer where the final color image is formed by reversal processing. Materials based on this principle offer a number of economic and technical advantages outlined in Mr. Ashton's original survey article. Following are the respective U. S. patents granted on January 4, 1955 and assigned to Kodak by the respective applicants: No. 2,698,794 (95/2, applic. 4/15/50) *Mixed Grain Color Emulsions*—L. Godowsky; No. 2,698,795 (95/2, applic. 3/26/53) *Sulfamyl Color Formers for Mixed-Grain Emulsions*—H. W. J. Cressman and S. S. Fierke; No. 2,698,796 (95/2, applic. 3/26/55) *Color Former Salts for Mixed-Grain Emulsions*—K. J. Chechak and S. S. Fierke and No. 2,698,-797 (95/2, applic. 3/30/53) *Resinous Color Formers for Mixed-Grain Emulsions*—L. Godowsky and L. M. Minsk.

Gasparcolor Speed System. One of the promised features of the Gasparcolor silver-dye bleach color process which fascinated prospective users of the very slow opaque print material was a mechanism for introducing the necessary subtractive-primary dye colors (yellow, magenta, and

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cyan) into the respective emulsion layers after exposure and before the first development step; for penetration of the precolored emulsion layers by the exposure light required inordinately long printing times. Mention was made of a colorless monopack emulsion which was suitably colored by immersion in a predeveloper bath with the desired color-coupling components. A fast printing system of this type has not as yet been realized in the form of a commercially available product. However, a recent French patent granted to P. D. Dreyfus, B. Gaspar, and C. B. Linden, suggests a practical compromise which should go a long way toward solving the speed problem. French patent No. 1,053,811 (applic. 1/6/50; granted 2/5/54) *Azo Dyes for the Silver Dye-Bleach Process* lists 31 examples of azo dyes which change their colors with a change in pH (acidity, in terms of hydrogen-ion concentration). These have been selected to transmit, during the printing exposure, the color of light for which the particular emulsion layer has been sensitized. Parent diazo and coupler compounds for the respective dyes are also listed in the patent.

Variable Movie Projector. A unique shutter which can be shifted automatically from a three- to a two-bladed position is now being fitted to three of Kodak's Pageant audio-visual 16-mm projectors. Named the "Super-40 Shutter," the new device permits the projector in which it is incorporated to provide flicker-free projection with sound as well as silent films at their respective normal operating speeds—24 and 16 frames per second. In the two-bladed position, the shutter provides an increase of 40 percent in screen illumination to facilitate projection in hard-to-darken rooms and large halls or where extra-long projection throws or extra-large screen images are needed. At the 16-fps silent speed the shutter presents three blades, providing 48 light interruptions per second. Switched to 24-fps sound speed, the shutter automatically switches into its two-bladed position, so that it continues to function with 48 light interruptions per second. When the extra brilliance of the two-bladed aspect is not required for sound projection, the new shutter can be locked in the three-bladed position. The Super 40 Shutter is now standard equipment in the Kodascope Pageant AV-073 Projector (7-watt; 8-inch speaker, single case) at $425; in the AV-153 (15-watt, 12-inch speaker, two cases) at $530, and in the AV-153-S (15-watt, 8-inch speaker, single case) at $455.

Silver Chloride Lenses. Kodak advertising in *Scientific American* magazine for January 1955 addressed to "laboratories everywhere" told a fascinating story of the use of silver-chloride lenses (in place of glass) for infrared spectrophotometry. A pair of plano-convex silver-chloride lenses is used to constrict one of the two beams of a double-beam infrared spectrophotometer so that its entire emission can be put through an opening 0.7 mm x 3.5 mm, which permits the use of very small samples of material for which infrared absorption data is required. A

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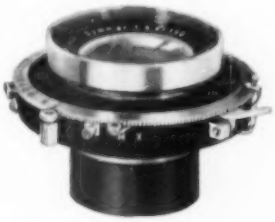
SYMMAR



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- 5.6/240mm Compur XII barrel

XENOTAR

High speed lenses, literally aberration free; far superior in quality and results to slower lenses of established reputation:

- 2.8/80mm Synchro-Compur MX0 barrel
- 2.8/105mm Synchro-Compur MXIS barrel
- 2.8/150mm Compur XII barrel
- 3.5/135mm Synchro-Compur MXI barrel

COMPONON

Provide definition and even illumination never before approached by enlarging lenses previously available:

- 4.0/50mm (regular and Leica Mount)
- 4.0/80mm
- 4.0/105mm
- 5.6/150mm
- 5.6/180mm
- 5.6/210mm

Schneider

LENSES... *Classics of Optical Precision*

U.S. Distributor: **BURLEIGH BROOKS, Inc. • 10 West 46th Street, New York 36, N. Y.**

frankly speaking

How to do it better... more easily... with more fun

DYNAMITE IN THE DARKROOM

Hard on the heels of the super-bright, rare-earth glass *f*1.1 lenses—a liquid developer with a formula that does for pictures what that *f*1.1 lens would do for you—if you had one! It's FR's new X-500 Film Developer for "Available Light" Photography, a bottled concentrate that adds SPEED to your film.

With your FR X-500, you base the film speed rating on the *developer*—not on the film's guide number. For more effective film sensitivity—a more active developer! You can use it at many temperatures—and with Tri-X film, in daylight, you could work at ASA 2000. That means you can use your high speed shutter for sports action and still be able to stop down for effective depth-of-field. Indoors you'll take pictures without flashbulbs or photofloods. Only 99c a quart—enough to make a gallon of developer!

For finest grain processing with even the grainy-type fast pan emulsions, FR's lab has produced X-33B, a Super Fine Grain Developer for All Film. It's outstanding because, unlike many other developing agents, X-33B DOES NOT CAUSE LOSS OF EMULSION SPEED! With the faster films, you can have the film's top emulsion rating AND have the fine grain structure that permits unusually large blow-ups from even parts of miniature negatives. Try your next roll of 35mm and #120 rollfilm and see for yourself. Only 99c a quart, already mixed and ready for use.

Ordinary Developer X-33B

If you're excited about the advantages of the thin-emulsion, fine grain films such as Adox, you'll want to know about FR X-22 Concentrated Compensating Developer—its perfect partner! Together these form an image, even in extreme enlargement, which must be seen to be appreciated. The "compensating" nature of the developer means that a single roll of film could have underexposed *and* over-exposed pictures—and yet provide negatives printable on normal and near-normal contrast papers. Sound unbelievable? You'll find it's true after using your first packet.

GETTING THE RIGHT START

Those of us who came into photography piecemeal, in spurts and spasms of enthusiasm, bought our basic darkroom equipment just about that way too! It was weeks and months before we had assembled all the proper equipment so that we could work at any time with what we had on hand. Newcomers into photography don't have to suffer with that problem.

The FR Home Developing and Enlarging Outfit includes not only the time-proven easy-to-load FR developing tank, the necessary liquid chemicals, trays, etc.—but best of all, unbelievably, the FR enlarger which

takes all popular size negatives—*even 35mm*—and produces amazingly satisfactory enlargements. (Secret of the success of the enlarger is a revolutionary *f*11 doublet lens which is an American Optical achievement after years of research!)

Even the packaging of the complete outfit contributes to its enthusiastic reception—it solves the storage problem. All of this for $29.95 which is less than the individual items sold separately and far less than you'd expect to pay when you consider that the very first evening your friend can develop and make big blow-ups for all to enjoy. FR also has smaller kits starting at only $8.95. (Would one of these help you with your Christmas problem of a gift for a youngster?)

HERE'S A $5 BONUS!

If you have a photo published in any of the photo hobby magazines or photo columns of your local newspaper—FR will pay a $5 bonus if an FR chemical, FR Electronic Flash or Minolta camera is credited in the caption. Send in the page to FR.

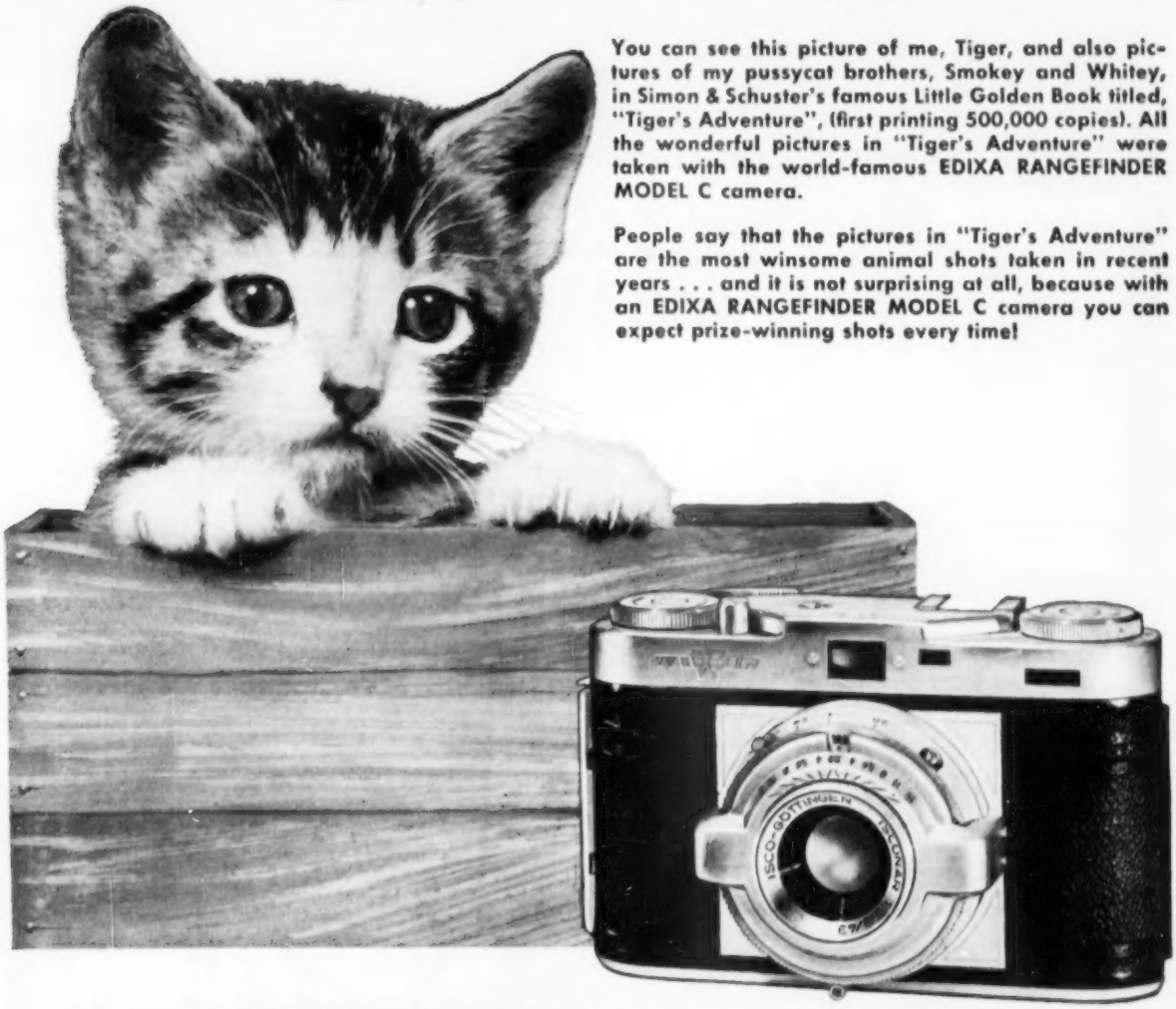
FREE! Famous FR "Little Man" glows-in-the-dark light pull. Now you can find the light cord in the dark. Just send your name and address to **THE FR CORPORATION, 951-P BROOK AVENUE, N. Y. 51, N. Y.**

second such lens collimates the beam again. The silver chloride is particularly useful because it is transparent to infrared far beyond 17,000 angstrom units. The procedure is an outgrowth of Kodak film-quality control techniques and has proven far less costly than working out reflecting microscope optics and adapting them to a spectrophotometer. Details on the manner in which these now available Kodak Infrared Microsample Optics are employed can be found in two fairly recent papers: *Silver Chloride Beam Condensing Lens System for Micro Infrared Measurements* by Don H. Anderson and Oran E. Miller (*Journal of the Optical Society of America*, Sept. 1953) and *Infrared Identification of Materials in the Fractional Milligram Range*, by Don H. Anderson and N. B. Woodall (*Analytical Chemistry*, December 1953).

Foreign Color Negative Films. During the past year, we have received several dozen letters from distraught readers begging us for the names of color laboratories equipped to process Agfacolor, Telcolor, Pakolor, Ferraniacolor, and Gevacolor negative films which they had purchased during their overseas travels. Kodak Ektacolor film processing materials are unsatisfactory because they are specifically designed to get optimum results with the unique integral color-correction masks and resin-bond dye couplers that are exclusive with Kodak Ektacolor (and Kodacolor) films. Wherever possible, we have referred inquiries to laboratories that have kept us informed of their ability to process the respective color materials. Users of these foreign color negative films who have their own home-processing facilities may be interested in a British product which can be imported into this country on an individual basis through retail photo-supply stores in Great Britain—the Synthacolor Kit. Recently improved (by the substitution of a combined bleach-fix bath for separate potassium-ferricyanide and hypo baths) to reduce the total processing time, the Synthacolor method represents a shotgun approach. Identical processing times are employed for the five above-mentioned negative materials, except for Gevacolor, which requires about twice as much treatment in the developer solution. Incidentally, we are advised by our British correspondent, George Ashton, that the combined bleach-fix agent in the new Synthacolor kit is the ferric salt of ethylene-diamine tetra-acetic acid.

Odds & Ends. A recent improvement in dry-battery design announced by the Elgin (Ill.) National Watch Company promises to bring the era of foolproof power supplies for photoflash service, self-focusing cameras, and automatic light-actuated diaphragm controls closer to realization than ever. The new cell, which delivers 1.15 volts (compared to 1.35 for similar miniature cells) is claimed to operate at constant voltage for two years without leaking, swelling, or emitting gas; it is semi-circular in shape, its area half that of a dime and three times as thick. A unique rare element, indium, is used as the anode of the new battery cell.—

500,000 people like my picture!



You can see this picture of me, Tiger, and also pictures of my pussycat brothers, Smokey and Whitey, in Simon & Schuster's famous Little Golden Book titled, "Tiger's Adventure", (first printing 500,000 copies). All the wonderful pictures in "Tiger's Adventure" were taken with the world-famous EDIXA RANGEFINDER MODEL C camera.

People say that the pictures in "Tiger's Adventure" are the most winsome animal shots taken in recent years . . . and it is not surprising at all, because with an EDIXA RANGEFINDER MODEL C camera you can expect prize-winning shots every time!

The EDIXA RANGEFINDER MODEL C is the only popular-priced 35-mm camera with all these features in *one* camera, and which sells for *under* $50! You would expect these features only in high priced, expensive cameras!

ARTISTS, WRITERS, SPORTSMEN, SCIENTISTS

Prominent personalities in many fields, all people of discriminating taste, have discovered the fine qualities and wonderful values inherent in the EXIDA RANGEFINDER MODEL C.

Tiger's picture is from the Little Golden Book "Tiger's Adventure", by William P. Gottlieb, Copyright 1954, Simon & Schuster, & Artists & Writers Guild.

- Automatic Rapid-Winding Lever—a flick of your finger on the lever permits you to take a series of shots in seconds.
- Fast F/2.8 color corrected lens gives you pictures that are razor-sharp, in color and black-and-white.
- RANGEFINDER is automatically coupled and scientifically balanced to assure pin-point sighting and focusing.
- Chronometer-accurate shutter has speeds to 1/200th for action.
- Built-in self-timer permits you to step into the picture.
- Built-in flash for flashbulbs and strobe flash.
- Double exposure prevention built into camera.
- New wide sweeping optical viewfinder gives you a picture-window panoramic view of your subject.
- Unparalleled precision micrometer-geared film frame counter automatically shows number of pictures exposed.
- The Edixa is custom finished in black morocco leather and satin chrome.

EDIXA COUPLED RANGEFINDER MODEL C with Rapid-Winding Lever, F/2.8 Color Corrected Lens, Pronto Shutter with speeds to 1/200th second, Self-Timer and Built-in Flash.....Price **$49.95** complete

See this New EDIXA RANGEFINDER MODEL C camera at your local dealer or write for colorful brochure.

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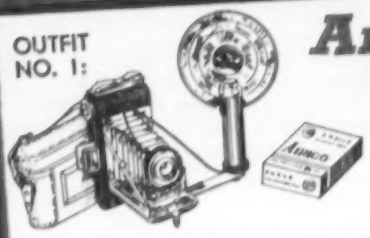
SAVE Dollars at *Dowling's* FIFTH AVENUE

Never before a sale like this! Save up to 50% and more on BRAND NEW *Ansco* camera outfits with D.F.A. imported flash units!

OUTFIT NO. 1:



Ansco Viking Readyset 6-Unit Camera Outfit

Agfa Isomar lens. Instant shutter and lens setting for trouble-free shooting! 8 large black and white or color pictures on 120 film.

Complete with ANSCO eveready case, flash unit, and 3 rolls of ANSCO All-Weather film.

From D. F. A. only . . . **$16.95**

Regularly $32.84 Save $15.89!

OUTFIT NO. 2:

Ansco VIKING f/4.5 6-Unit Camera Outfit

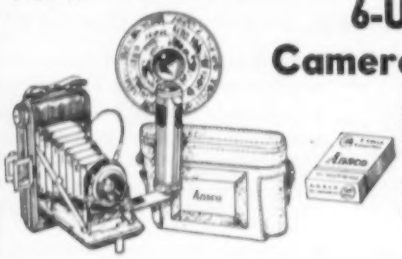
Agfa Agnar f/4.5 zone-focusing lens. Self-timer shutter; speeds to 1/200th sec. Body shutter release for smooth shooting. Optical finder and accessory shoe. 8 large pictures to a roll. **Complete** with roomy gadget bag, flash unit and 3 rolls of ANSCO All-Weather film.

From D. F. A. only . . . **$29.50**

Regularly $60.39 Save $30.89!

OUTFIT NO. 3:

Ansco Commander 6-Unit Camera Outfit



Agfa Agnar f/6.3 zone-focusing lens. Vario synchronized shutter with speeds to 1/200th sec. 8 large pictures to a roll. **Complete** with ANSCO genuine leather case, flash unit and 3 rolls of ANSCO All-Weather film.

From D. F. A. only . . . **$21.95**

Regularly $45.64 Save $23.69!

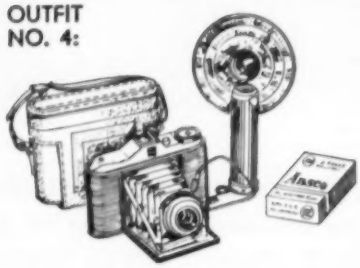
Here's DOWLING'S Fifth Avenue quality at never-before LOW, LOW prices! Because D. F. A. is the leader in the new, fine camera field—we don't dabble in off-beat "buys." This special, first-ever sale comes instead from our unique purchasing power with top camera manufacturers. And the unprecedented savings are passed along to YOU! Just look at these BRAND NEW, FACTORY PACKED, complete camera outfits: All are the latest, current 1956 models!

ANSCO folding cameras are smartly designed—ultra-modern and streamlined. They GET MORE PICTURES . . . because they are compact enough to go ANYWHERE. Touch a button and your ANSCO camera snaps to attention—ready for instant action! Yet every ANSCO camera shown here uses popular 120 roll film, for convenient large-size album prints. All are products of world-famous Agfa Camera Werk, Munich, Germany. Each is a precision instrument, with fine optics, for both brilliant black and white and breath-taking color shots! Only DOWLING'S Fifth Avenue brings you such really TOP quality at such remarkably low prices.

You'll receive a COMPLETE 6-unit outfit, exactly as illustrated. Each outfit is covered by DOWLING'S Fifth Avenue distinctive LIFETIME GUARANTEE and 30 DAY FREE TRIAL privilege.

Check over these exciting outfits NOW. Treat yourself. Treat your family and friends. These DO make perfect gifts. NOT sold through local dealers. Available ONLY from D. F. A. Don't delay. Make sure YOU capture this once-in-a-lifetime opportunity! Mail your order DIRECTLY to DOWLING'S Fifth Avenue TODAY!

OUTFIT NO. 4:



Ansco Speedex 6-Unit Camera Outfit

Agfa Agnar f/4.5 zone-focusing lens. Flash synchronized Vario shutter, with speeds to 1/200th sec. 12 album-size pictures on 120 film. Optical viewfinder and accessory shoe. **Complete** with ANSCO top-grain case, flash unit and 3 rolls of ANSCO All-Weather film.

From D. F. A. only . . . **$29.50**

Regularly $45.39 Save $15.89!

Dowling's 175 Fifth Avenue, New York 10, N. Y.

FIRST-EVER *Ansco* CAMERA SALE!

Cash in NOW on **Dowling's Fifth Avenue** biggest ***Ansco*** camera scoop of the year! Tremendous values!

OUTFIT NO. 5:

Ansco Speedex f/4.5 Special 6-Unit Camera Outfit

Agfa Apotar f/4.5 zone-focusing lens. Prontor SV shutter, with 8 speeds from 1 full sec. to 1/300th sec. Built-in self timer. Full synch' for all flash and electronic units. Double exposure prevention lock. Body shutter release; optical viewfinder; accessory shoe—plus a host of other valuable features! **Complete** with ANSCO eveready case, flash unit and 3 rolls of ANSCO All-Weather film.

From D. F. A. only . . . **$34.95** Regularly $63.39 **Save $28.44!**

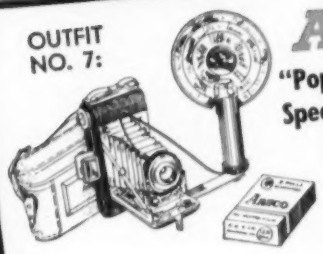
OUTFIT NO. 6:

Ansco Speedex Special "R" 6-Unit Camera Outfit

This is "tops" in the famous Speedex line! Agfa Apotar f/4.5 zone-focusing lens. Prontor SVS 8 speed shutter, with built-in self-timer. Fully synchronized for every type of flash. Double exposure prevention mechanism. PLUS . . . independent built-in **rangefinder** combined with viewfinder! Removes all guess work and insures needle-sharp focusing everytime! The Special "R" delivers 12 album size prints on 120 film. **Complete** with handsome gadget bag, flash unit and 3 rolls of ANSCO All-Weather film.

From D. F. A. only . . . **$39.50** Regularly $70.89 **Save $31.39**

OUTFIT NO. 7:



Ansco "Pop and Junior" Special Two-Camera (12-Unit) Outfit

Now you can treat yourself and treat Junior too! Imagine: You'll receive the complete ANSCO Viking Readyset Outfit No. 1 AND the superb, **complete** ANSCO Speedex Special "R" Outfit No. 6! A total of 12 units: 2 fine cameras; 2 flash units; Viking case; Speedex Special "R" gadget bag; and 6 rolls of ANSCO All-Weather film! Yours will really be a "photographic" family! (BOTH outfits complete!).

From D. F. A. only . . . **$49.95** Regularly $103.73 **Save $53.78!**

YOUR Christmas will be Merry, too, with ANSCO Camera Outfits under your tree!

ALL outfits shown are available ONLY from DOWLING'S Fifth Avenue. Mail your order TODAY directly to our New York headquarters. Postage and insurance FREE the world-over — including A. P. O. and F. P. O. addresses!

ANSCO FILM FURNISHED IN HANDY 3-ROLL PAK!

RUSH ORDER FORM

Please check the **complete** ANSCO outfits you want. It's first come—first served on this scoop of the year!

- ☐ 1. ANSCO Viking Readyset 6-Unit Camera Outfit $16.95
- ☐ 2. ANSCO Viking f/4.5 6-Unit Camera Outfit 29.50
- ☐ 3. ANSCO Commander 6-Unit Camera Outfit 21.95
- ☐ 4. ANSCO Speedex 6-Unit Camera Outfit 29.50
- ☐ 5. ANSCO Speedex f/4.5 Special 6-Unit Camera Outfit 34.95
- ☐ 6. ANSCO Speedex Special "R" 6-Unit Camera Outfit 39.50
- ☐ 7. ANSCO "Pop and Junior" Special Two-Camera (12-Unit Outfit) 49.95

Dowling's 175 FIFTH AVENUE, NEW YORK 10, N. Y.
in a N. Y. Landmark,—the Flatiron Bldg. at 23rd St.
Mail Order Showroom, Suite 2000. Tel.: ORegon 4-7900

P-1155

Enclosed is $..... for the special ANSCO outfits checked on the accompanying RUSH ORDER FORM.

- ☐ Please address the shipment as shown below *.
- ☐ I want several outfits sent to various addresses. A note with complete shipping instructions is attached.
- ☐ Please gift-wrap. No charge for this service!
- ☐ Enclose a gift card with my name as donor: .....

* Ship to (Name): .....

Address: ..... MAIL TODAY

City or Town: ..... State: .....

MORE of D.F.A.'s 6 Page Guide to the *best* in Photographic Equipment!

Dowling's
FIFTH AVENUE

Visit our Skyline Suite to say "Hello!"

Hitch your wagon to the star! . . .
1956 CONTAX II-A and III-A

ZEISS IKON

Single-window for rangefinder and viewfinder, metal focal plane shutter, removable back, bayonet lens mount, delayed action release, full built-in flash synchronization are just a few of the reasons for the acknowledged leadership of CONTAX! Contax II-A with Tessar coated f/3.5 lens **$261. Cash or $26.10 Down**; with Sonnar coated f/2.0 lens **$345. Cash or $34.50 Down**; or with Sonnar coated f/1.5 lens **$374. Cash or $37.40 Down.** For Contax III-A (with built-in exposure meter) add **$38. Cash or $3.80 Down.**

Selected Contax Lenses and Accessories

Biogon 21mm f/4.5	$249.00 Cash or $24.90 Down
Biogon 35mm f/2.8	183.00 Cash or 18.30 Down
Planar 35mm f/3.5	102.00 Cash or 10.20 Down
Triotar 85mm f/4.0	106.00 Cash or 10.60 Down
Sonnar 85mm f/2.0	229.00 Cash or 22.90 Down
Sonnar 135mm f/4.0	146.00 Cash or 14.60 Down
Stereotar C, 35mm f/3.5's	159.00 Cash or 15.90 Down
Stereo Prism Attachment	37.00 Cash or 3.70 Down
Stereo Viewfinder	10.00 Cash or 1.00 Down

1956 ▲ IKOFLEX

Ikoflex I-A with Novar coated f/3.5 lens in Prontor full synch' shutter **$76. Cash or $7.60 Down; Ikoflex I-A** with Tessar coated f/3.5 lens in Prontor full synch' shutter **$96. Cash or $9.60 Down;** and the superlative **Automatic Ikoflex II-A** with Tessar coated f/3.5 lens in Synchro-Compur MX shutter **$126. Cash or $12.60 Down.**

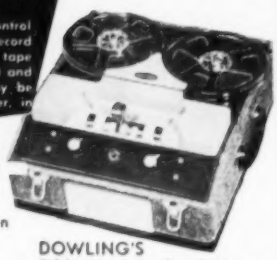
1956 CONTAFLEX

The gem of all 35mm Single Lens Reflex cameras! Ground-glass eye-level focusing is combined with split image rangefinder. Superb Tessar 45mm coated f/2.8 lens, with fully automatic diaphragm. Contaflex I **$169. Cash or $16.90 Down;** Contaflex II (Built-in meter) **$199. Cash or $19.90 Down.**

Just released! . . . Brand new 1956 CLIPPER
THE SUPERB Pentron PORTABLE TAPE RECORDER

With Exclusive MONOMATIC* CONTROL

MONOMATIC is a single knob control providing instant selection of Record or Play, in either 7½ or 3¾ tape speeds, as well as Fast Forward and Fast Rewind. Any position may be selected by a flick of the finger, in either tape speed.



The CLIPPER
(Don't confuse with discontinued models!)
Dual Track Dual Speed
$129.50
Cash or only $12.99 Down

- Plays in any position!
- Simplest to operate
- High fidelity performance
- 2-speed, 2-hour operation

DOWLING'S Fifth Avenue also features

Pentron Multi-speed Portable Tape Recorder.
$189.50 Cash or $18.95 Down

Pentron 3 Speaker High Fidelity Tape Recorder for life-like dimensional presence.
$225.00 Cash or $22.50 Down

Hi-fi enthusiasts! Write D. F. A. for free brochure on Pentron low cost hi-fi tape components for portable use and custom installations!

A Cordial Invitation...

No doubt about the ease of shopping by mail! . . . But it is nice to meet personally our mail order friends. Whether to say "hello" or to talk cameras, you'll find a warm welcome! Our Mail Order Division is on the 20th Floor (Skyline Suite) of that famous landmark, the Flatiron Building . . . The panoramic view of New York is most photogenic. When you are in our home town, please do stop in!

Photographic History in the Making with the Extraordinary New 1956 RECTAFLEX

- **Brilliant Eye-Level Ground Glass Focusing** PLUS split-image rangefinder
- **Interchangeable Lenses** from 28mm to 600mm
- **Built-in Synchronization**—for flashbulbs and electronic units
- **Cartridge to Cartridge Film Feed**
- **Unconditional Lifetime Guarantee** on chronometer-jeweled shutter mechanism and shutter speeds

1956 Rectaflex with coated lens indicated:

50mm Schneider Xenon f/2.0	$329.50 Cash or $32.95 Down
50mm Angenieux (pre-set) f/1.5	450.00 Cash or 45.00 Down
40mm Makro-Kilar E f/3.5 (4" to infinity)	364.95-Cash or 36.49 Down
40mm Makro-Kilar D f/3.5 (2" to infinity)	389.95 Cash or 38.99 Down
1956 Rectaflex Rotor (Turret) with pistol grip and rifle stock and with 50mm Angenieux (pre-set) coated f/1.5 lens	660.00 Cash or 66.00 Down

Selected Rectaflex Accessories

28mm Angenieux f/3.5 lens	$120.00 Cash or $12.00 Down
35mm Angenieux f/2.5 lens	99.50 Cash or 9.95 Down
40mm Makro-Kilar E f/3.5 lens	89.95 Cash or 8.99 Down
40mm Makro-Kilar D f/3.5 lens	114.95 Cash or 11.49 Down
90mm Angenieux f/2.5 lens	84.50 Cash or 8.45 Down
90mm Angenieux f/1.8 lens	149.50 Cash or 14.95 Down
135mm Angenieux f/3.5 lens	75.50 Cash or 7.55 Down
135mm Angenieux f/2.5 lens	169.50 Cash or 16.95 Down
400mm Kilfitt f/5.6 lens	239.95 Cash or 23.99 Down
Camera carrying case	15.00 Cash or 1.50 Down
Microscope adapter	28.00 Cash or 2.80 Down
Bellows attachment	75.00 Cash or 7.50 Down

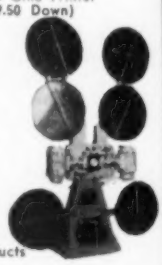
UHLER Cine Printers
the standard of perfection!

Uhler 16mm Sound Cine Printer! (illustrated)

Makes contact prints of both sound and silent pictures in black and white or color. Prints picture and sound at the same time. 400' capacity; beautiful precision finish. Copies of all your favorite films can be made at about one-quarter the cost of the original. It's easy and lots of fun to make your own prints at home. Titles may be made with double exposed motion background as shown in theatres. Complete instructions are furnished with each machine.

$125. Cash or $12.50 Down
◀ (Uhler 16mm Silent Cine Printer **$95. Cash or $9.50 Down**)

Uhler Combination 8mm and 16mm Continuous Printer ▶ (illustrated)



For professional or amateur movie makers, laboratories, schools and technicians—where the highest quality prints are required. Black and white or color; single or double system sound — film is run through the machine once only. 1200' capacity. Printing speed up to 1600' per hour. Lamps are air-cooled. Built-in filter holder for color film printing.

$685. Cash or $68.50 Down

Other Uhler Precision Cine Products

Combination 35mm Continuous Printer for Sound or Silent Pictures (capacity — 6-1200' feed and take-up discs)	$1145.00 Cash or $114.50 Down
Reduction and Enlarging Printer for 8mm and 16mm (1200' capacity)	1056.88 Cash or 105.68 Down
Reduction and Enlarging Printer for 16mm and 35mm (capacity — 4-1200' feed and take-up discs)	2475.00 Cash or 247.50 Down

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175 Fifth Avenue
NEW YORK 10, N. Y.

1956 Model 700 *Tape-o-Matic* Recorder:

The Voice of Music

NEW! And this is IT . . . for the recording perfectionist! VM Corporation—the world's largest manufacturer of phonographs and record changers—and D. F. A. now bring you a recorder with more professional features than any in its price range.

Here's but a short list of some of the Voice of Music's "ear openers":

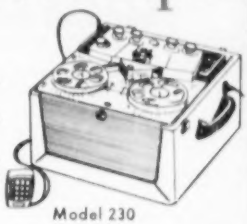
- **Monitor Switch** . . . hear actual recordings while made "live" from radio or magnetic cartridge pickup
- **Woofer-tweeter speaker system**
- **High fidelity** . . . from 40 to 15,000 cycles
- **Dual input, dual output jacks**
- **Use as phono amplifier or P. A. system**

VM Tape-o-Matic only **$179.95 Cash or $17.99 Down!**

For the inside story on the feature-packed VM Tape-o-Matic Recorder write to DOWLING'S Fifth Avenue for FREE brochure **today!** Or—if you have a special recording or hi-fi problem—please feel free to write for personal advice to our audio consultant, Ralph Thomas.

Golden Tone Webster Electric Ekotapes

the ultimate in sheer functional beauty and high-fidelity!



Model 230

- Finger-tip operation
- Single unit control
- Interlocking erase . . . prevents accidental erasure
- Instantaneous speed change to 3¾" or 7½", as desired
- PLUS a host of other features, making Ekotape **your** best tape recorder buy among recorders of the highest calibre

EKOTAPE Model 240 (2 speed) ..... **$189.50 Cash or $18.95 Down**
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FREE Golden Tone EKOTAPE brochure on request, or order directly from DOWLING'S Fifth Avenue **today!**

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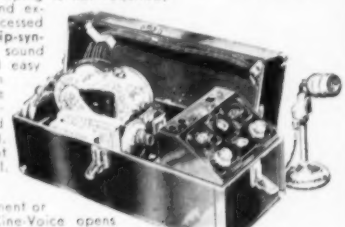

Whether for home enjoyment or professional use, the Cine-Voice opens a new world of sound pictures . . . write for **free** Auricon brochure or order from DOWLING'S Fifth Avenue **today!**

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Sunshade	1.75

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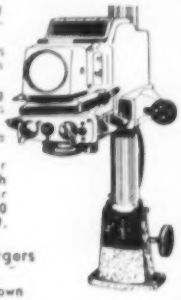

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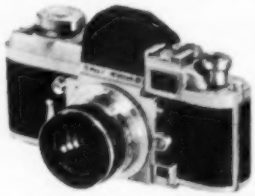

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Elmar-M coated 90mm f/4.0 lens (collapsible)	150.00 Cash or	15.00 Down
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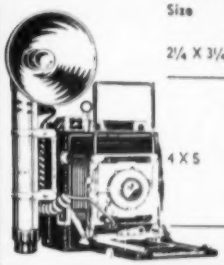
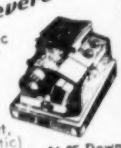


Size	Coated Lens in Shutter	Speed Graphic	Crown Graphic
2¼ X 3¼	101mm Ektar f/4.5 (1/800 sec.)	$338.	$300.
	105mm Tessar f/3.5	355.	306.
	105mm Ektar f/3.7	343.	294.
4 X 5	135mm Schneider Xenar f/4.7	337.	291.
	135mm Optar f/4.7	354.	305.
	127mm Ektar f/4.7	354.	305.
	135mm Tessar f/4.5	370.	326.
	150mm Schneider Xenar	381.	334.
	150mm Tessar f/4.5	381.	334.
	152mm Ektar f/4.5	371.	327.
	135mm Schneider Xenar f/3.8	388.	344.
	150mm Tessar f/3.5	448.	400.
	150mm Schneider Xenotar f/2.8	568.	524.

New Graphic rangefinder is manufactured for 4 X 5 cameras only. 2¼ X 3¼ outfits are supplied with Kalart coupled rangefinder.

New 1956 Revere 888



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Runs by itself! Model "553" (300 watt, automatic) **$69.50 Cash or $6.95 Down;** Model "555" (500 watt, automatic) **$79.50 Cash or $7.95 Down;** Model "888" (500 watt fully automatic) **$119.50 Cash or $11.95 Down.**

1956 MINOX III-S

Fabulous! Weighs 2½ ozs.; 3" long. Automatic transport takes 50-exposure film. Built-in flash; 9 speeds to 1/1000th sec.; sharp f/3.5 lens. With case and chain **$139.50 Cash or $13.95 Down.** Accessory reflex finder **$27.50;** right-angle finder **$14.95.**

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New 1956 Automatic Kodak VX

With fully automatic diaphragm lens listed: Tessar f/2.8 **$259.50 Cash or $25.95 Down;** Westagon f/2.0 **$289.50 Cash or $28.95 Down;** Biotar f/2.0 **$345. Cash or $34.50 Down;** Xenon f/1.9 **$351.70 Cash or $35.17 Down.** With Pentaprism R/F add **$47. Cash or $4.70 Down.**

ALL NEW 1956 RETINA IIIc

Built-in exposure meter and with normal Xenon coated f/2.0 lens in M-X shutter — **$190. Cash or $19.00 Down.** Optional: Curtar 35mm coated f/5.6 wide angle lens **$62.50 Cash or $6.25 Down;** Longar 80mm coated f/4.0 telephoto lens **$82.50 Cash or $8.25 Down.** Retina IIc **$135. Cash or $13.50 Down.**

new 1956 BESELER Enlargers

Takes negatives from 16mm to 4 X 5 without changing condensers! Has automatic electric motor. 4 X 5 Model **$198.75 Cash or $19.87 Down;** 5 X 7 Model **$239.75 Cash or $23.97 Down.**

1956 Linhof Super Technika Cameras

4 X 5 model with multifocus rangefinder, universal back and 150mm Xenar coated f/4.5 lens **$419.70 Cash or $41.97 Down.** Linhof 2¼ X 3¼ outfit with multifocus rangefinder and 3 lenses complete **$564.15 Cash or $56.41 Down.**

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—superlative single lens reflex with 2¼ X 2¼ crisp Ektar coated f/2.8 lens and speeds to 1/1000th sec.: **$379.50 Cash or $37.95 Down.** NEW Super-wide Model with 38mm Zeiss Biogon coated f/4.5 lens **$489.50 Cash or $48.95 Down.**

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Rolleiflex with Xenar f/3.5 **$217.50 Cash or $21.75 Down;** or with Tessar f/3.5 **$232.50 Cash or $23.25 Down.** Rolleiflex 2.8C, either Xenotar f/2.8 or Zeiss Planar f/2.8 **$291.50 Cash or $29.15 Down.** Rolleicord V with Xenar f/3.5 **$134.55 Cash or $13.45 Down.**

new BOLEX H-16 Supreme

New model . . . just released! Complete with 3 top Kern lenses: Switar 1" f/1.4, Switar 16mm f/1.8, Switar 50mm f/1.4 —plus compartment case **$824. Cash or $82.40 Down.** Bolex H-16 Leader with Lytar 1" f/1.9 lens **$269.50 Cash or $26.95 Down.**

Complete 1956 Keystone 5-Unit Movie Outfit

Top-quality Olympic 8mm turret camera with normal f/2.5 lens, Kinotar wide angle f/2.5 lens, Kinotel telephoto f/3.5 lens, latest Brockway M-3 exposure meter, plus roll 8mm Kodachrome film. **Complete $139.50 Cash or $13.95 Down.**

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A famous technician solves your problems

I have been using a Bantam 828 camera and have had excellent results using daylight Kodachrome with blue #5B flashbulbs. However, they will only synchronize at 1/25 second with this camera. I would like to make pictures at higher speeds, is it practical to use the SF or SM bulbs with Jen-Dip?—W. E. H., Lawton, Oklahoma.

Yes, Jen-Dip can be used with SM or SF bulbs, but you dip them for ONLY 4 SECONDS instead of the normal 5 seconds. I am told that the results are quite good if you follow directions carefully. However, you must remember that the SM and SF bulbs don't produce much light to start with, so when blue-dipped and used with Daylight Kodachrome, the guide number is only 24; this is fine for close-ups but not much use beyond ten feet unless you have a *very* fast lens. With your Bantam camera, you'd have to work quite close.

Incidentally, you might be interested to know that we made some tests on the new M2 flashbulbs—those very small, small ones, coated by a dipping in Jen-Dip for four seconds. They gave very good results at 1/25 and 1/50 second, too, for close-up work and fill-in flash.

●

I have taken outdoor pictures on Ektachrome on my Speed Graphic and Ciroflex from the same spot, with the same lighting and exposure, but the larger film produces better color. Both films are rated at 8, but the roll film appears to be faster and the pictures a little washed out. What causes this?—E. W. A., New Milford, N. J.

There are several apparent causes of exposure discrepancies between pictures shot with different cameras, and with film of the same type in different form. In the first place, each emulsion of film has its own particular characteristics, both as to speed, color response, and response to processing, and even though your roll and sheet film may have been processed at the same time, such a difference as you note may just be the inherent difference between the peculiarities of different emulsions. However, my own suspicion is that the variation is in your equipment rather than being entirely due to film variation.

If you were to have your two cameras checked accurately for shutter speed—that is, actual speeds against the scale markings, and also have the diaphragms checked to see whether at a particular *f*-stop you were getting what was indicated, you would probably find that here was the source of your trouble. One shutter may be a little slow, the other a little fast. One lens may give you a little less than *f*/8 (let's say) and the other a little more when both diaphragms are set at 8. What happens? You soon pick up cumulative errors: 10 or 15 percent error in one shutter, and the other may be the same amount in the other direction. Same thing with the diaphragm settings; and then one film may be 10 percent faster than the other; the development may also give a small percentage of increase to one of the two, so that by the time you're through, some of these errors have added up and given you a 50 percent difference. There's your half a stop.

If you're inclined to think that the error lies in the films rather than in your equipment, run your tests again and borrow a roll-film adapter to use on your Graphic so that both the sheet and roll films are exposed through the same lens and with the same shutter, and then process them together. Be sure to look, too, at the correction data included in each box of color film to tell whether it is to be shot normally or whether it requires a little more or less exposure.

We've said before, and it's worth repeating: making fine color film is like making fine wine or fine cheese. You put all the same ingredients in and wait for the aging process to take place. Sometimes you have a good batch, sometimes you have a wonderful batch. I often think we're lucky to have color as good as it usually is!

●

While we're on the subject of good results, don't try to use Eastman Color Negative Film in still cameras. The film is designed especially for making print films for motion-picture use and a developing adjustment is made for each emulsion. However, R. E. M. of Detroit writes to tell us that the Multi-Color Film Co., of Hollywood, California, will process short lengths of this film. We print this for your information; the color may be very good, but Eastman Kodak, who makes it, doesn't make it for this purpose.

●

Richard Marx of New York City sends us a cute idea for eliminating Newton's rings in transparencies that curl a good deal. He says that when he gets particularly ornery ones, he takes an *extra* film mask and puts it behind the mask holding the film or on the side toward which the film buckles. This acts like a little shim to hold the film away from the glass and to eliminate the Newton's rings. Using the extra-thin glasses, the entire bound slide is still thin enough to fit into standard projectors. Thank you for the hint, Mr. Marx.

Questions of general interest to the color photographer will be answered in this department. However, individual replies can not be given for questions that are not used.—Ed.

Leonard Warren, accompanied by Mrs. Warren, rehearses in his studio with Bell & Howell's new Miracle 2000 tape recorder.

"Miracle 2000 helps me rehearse for the Metropolitan"

...says Leonard Warren, leading baritone of the Metropolitan Opera Company.

"One reason I prize my Bell & Howell tape recorder is that this remarkable instrument allows me to be my own critic.

"High notes . . . the lowest notes . . . a wide-ranged passage for a single baritone voice . . . an orchestral bridge that soars to full volume . . . the Miracle 2000 plays it all with honest fidelity."

The Miracle 2000 gets its name from a revolutionary sound system. Two electrostatic speakers have 2,000 tiny perforations that act like 2,000 high frequency speakers. Two 8" speakers faithfully reproduce bass.

Ease of use contributes to Miracle 2000 enjoyment. Six electric push buttons operate the recorder. Their "automatic memory" prevents improper use sequence.

You'll be pleased to discover that here's the same quality that has won Bell & Howell world-wide respect in photographic equipment.

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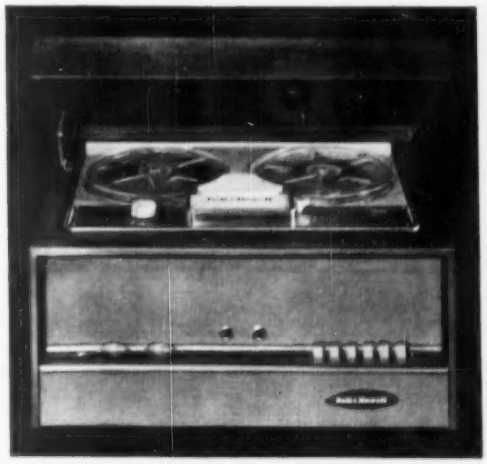
To Bell & Howell for 47 Years of Pioneering Contributions to the Motion Picture Industry



See your dealer for a demonstration or write for free descriptive brochure on the Miracle 2000. Bell & Howell, 7106 McCormick Road, Chicago 45, Illinois.

experience leads to Bell & Howell

For as little as $49.95, you can give a gift bearing the famous name of

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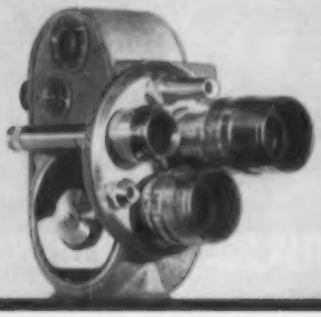
THE WILSHIRE, easiest to use of all 8mm movie cameras! Set exclusive Sun Dial, sight through giant viewfinder and shoot. Low $49.95 includes fast, wide-angle lens.

"... and they make wonderful gifts to give yourselves!"

THE TRI-LENS, most versatile 8mm roll camera! Three-lens turret with matching viewfinders. 5 speeds. Compact for easy handling and fast action. With f/2.5 Comat lens, $129.95.

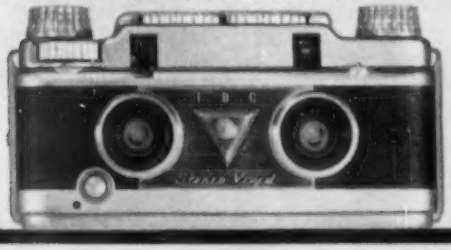


THE EXPLORER, fast-action movie maker! Instant loading. Only two-lens 8mm magazine camera in which viewfinder is always in position with lens. Built-in exposure guide. With f/2.5 Comat lens, $169.95.

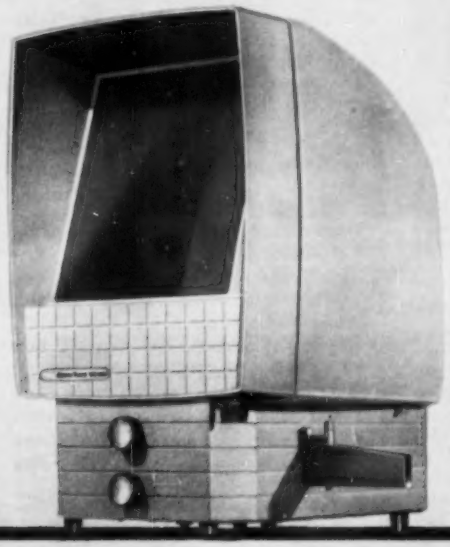
THE AUTO LOAD, master of 16mm magazine cameras! Loads in 3 seconds. Lenses interchange. Positive viewfinder—you get exactly what you see. With f/2.5 Comat lens, $174.95.

TDC STEREO COLORIST, three-dimension precision priced for giving! Built-in "deep focus" allows beginners to take perfect pictures without complex settings. All-metal construction. A real holiday buy at only $84.50. Presentation Set (camera, viewer, flash unit, leather case), $124.50.

TDC STEREO VIVID, world's most automatic stereo camera! Simply select shutter speed, set automatic dial, "squeeze trigger." Coupled single-window rangefinder and viewfinder. $149.50. Presentation Set contains camera, viewer, flash unit, leather case, and pair of filters for $198.



TDC STEREO TABLE VIEWER, new idea for group enjoyment of stereo slides! To magnify breath-taking reality of stereo in color, twin 200-watt lamps project slides on big 8" x 9" black glass. Powerful blower cools viewer and slides. $119.50.



TDC DELUXE MODEL D, 300-watt projector leader! Wind Tunnel Cooling ends focus adjustment between slides. High-speed air travel through cooling channel prevents "popping" of slides. In self-contained Airflow case, $74.75.

TDC STREAMLINER 500, finest 500-watt projector you can give (or keep)! Wind Tunnel Cooling brings extra cooling to its lamp, optics and to valuable slides themselves. Mounted in self-contained Airflow case for easy portability. $79.75.

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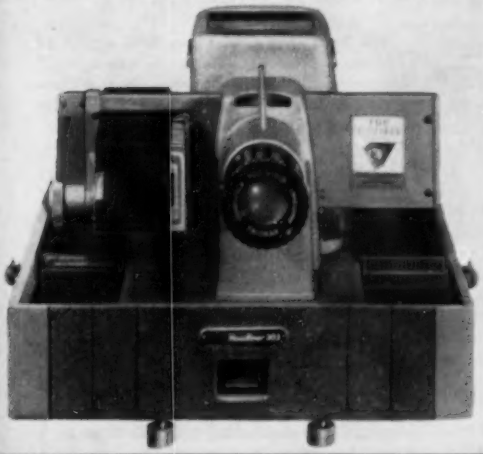

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Merry Xmas
to everyone with
MARSHALL'S
PHOTO-OIL COLORS

FOR DAD
Painting is the relaxing hobby of presidents and prime ministers—why not for Dad? Even if he can't draw, he can paint, with Marshall's Photo-Oil Colors.

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Remember Mom with a hobby that can make her extra money for the extras that all moms like to buy with their very own cash.

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Give her a set of Photo-Oil Colors. It will boost her popularity score. She can be the artist of her crowd, coloring photos of herself, her family and her friends.

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Who likes the Photo-Oil Color Pencils to color snaps of his pals . . . pictures of his favorite singers, cowboys, and pets.

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APPROVED BY SANTA
who likes the moderately-priced gift that pleases young and old, suits the beginner yet is welcomed by the professional colorist. Santa likes the gift that pleases even the hard to please . . . or the "hard to buy for." He likes the gift that gives pleasure many days after the holidays are a memory. And colorful holiday memories can be kept alive . . . with Marshall's Photo-Oil Colors and Marshall's Photo-Oil Color Pencils.

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PHOTO-OIL COLORS
the colors the professionals use

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☐ Four different 5x7 photos, just right for coloring $1.00
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☐ Our most popular set, THE ACADEMY complete $5.40
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camera clubs

by Whit Hillyer

Let's Temper the Wind

Occasionally I beam a spotlight on such questions as art in photography, salon judging standards, and the like. I have come out against the Wagon-Wheel-and-Water-Lily school on one hand and the somewhat baffling avant-garde group on the other. I've made my share of enemies on both sides of the aisle.

But this month let me quote from what I consider an excellent editorial which appeared not long ago in *Cleveland Photographic Society's* "Through the Darkroom Door." Editor Laurence Harrup starts his piece out by mentioning past statements by museum people and editors to the effect that salon photography is uninspired, without ideas, lacking in self-expression. From here in, let Brother Harrup take the floor for a bit!

"Truthfully," he writes, "most of us, most of the time, deserve the appellation of newspaper-supplement documentarians and glorified snapshooters. Don't most of our best prints say, 'This is what it looks like?' instead of 'This is how it makes me feel?' . . . Lack of originality is a brick often thrown at salon photography, and in a measure it merits it. Salonists themselves are to blame for this—numerical salon records have assumed too great an importance. . . .

"A picture having originality and verve . . . is a rare thing and deserves to be rewarded accordingly. . . The print lacking these things may still be an excellent print even though it is a minor modulation of a print you have seen before. It should be judged for what it is, rather than punished for lacking that which it does not pretend to have. . . . One would not suppose a museum director would refuse a portrait of a soldier merely because he has seen Rembrandt's 'Man with the Golden Helmet.' . . .

"We don't completely disagree with the notion that much in the photographic salons is repetitious, but we can't understand why a pure abstract design in oil colors is an inspired and original work of art, while a photographic representation of a design in nature is without imagination.

"Surely, originality and emotional impact are desirable qualities; they are also qualities which are hard to come by. As such they . . . are a goal to be striven for. In the meantime we should stop punishing ourselves for failing to produce the Great American Document each print night, at least until our accusers are no longer guilty of the same sin."

Nice job, Mr. Harrup. Your thinking shows originality, self-expression, and—yes, verve. Many thanks for the use of your message, which deserves the widest possible readership among those of us who take pictures.

Coast Fiesta Shaping Up

The most important amateur movie event in Northern California history is ready to take place October 22-23 at San Francisco's Fairmont Hotel, when the *Filming for Fun Fiesta* will be presented. Sponsored by the *Northern California Council of Amateur Movie Clubs*, the Fiesta has an excellent program lined up. Highlights include a FilmoRama (16-mm CinemaScope) magnetic-sound-film presentation by Tullio Pellegrini and a showing of Glen Turner's excellent magnetic-sound puppet film, *The Sorcerer of Shad*. Instructional lectures, demonstrations, and panel discussions are included also.

Accent on Redheads

The Canadian Redhead Photographic Association is a group of men and women who specialize in photographing redheaded people of both sexes and all ages. They work largely with professional models and keep careful data on each job done. If you care to correspond, write to Alan Rogers, Canadian Redhead Photographic Association, 3 Huntington Crescent, Toronto 3, Canada.

For Your Correspondence List

These clubs would enjoy corresponding and swapping ideas with you:

Monochrome Club, George Carson, Sec., 12127 South Duncan, Compton, Calif.

Grupo Fotografico de Tijuana, B. C., Leopolde Alunde, Sec., P.O. Box 193, San Ysidro, Calif.

Shutter Bug Club, Karen Signell, Sec., United Nations Apts., Djakarta, Indonesia.

Kansas City Camera Club, Elmer Schanzer, 7429 Bellefontaine, Kansas City, Mo.

Gravesend Camera Club, c/o E. P. Cafarella, 155 Avenue U, Brooklyn 23, N. Y.

Missouri, Kansas & Texas Railroad Camera Club, Milton E. Roebke, 3506a McKean Ave., St. Louis 18, Mo.

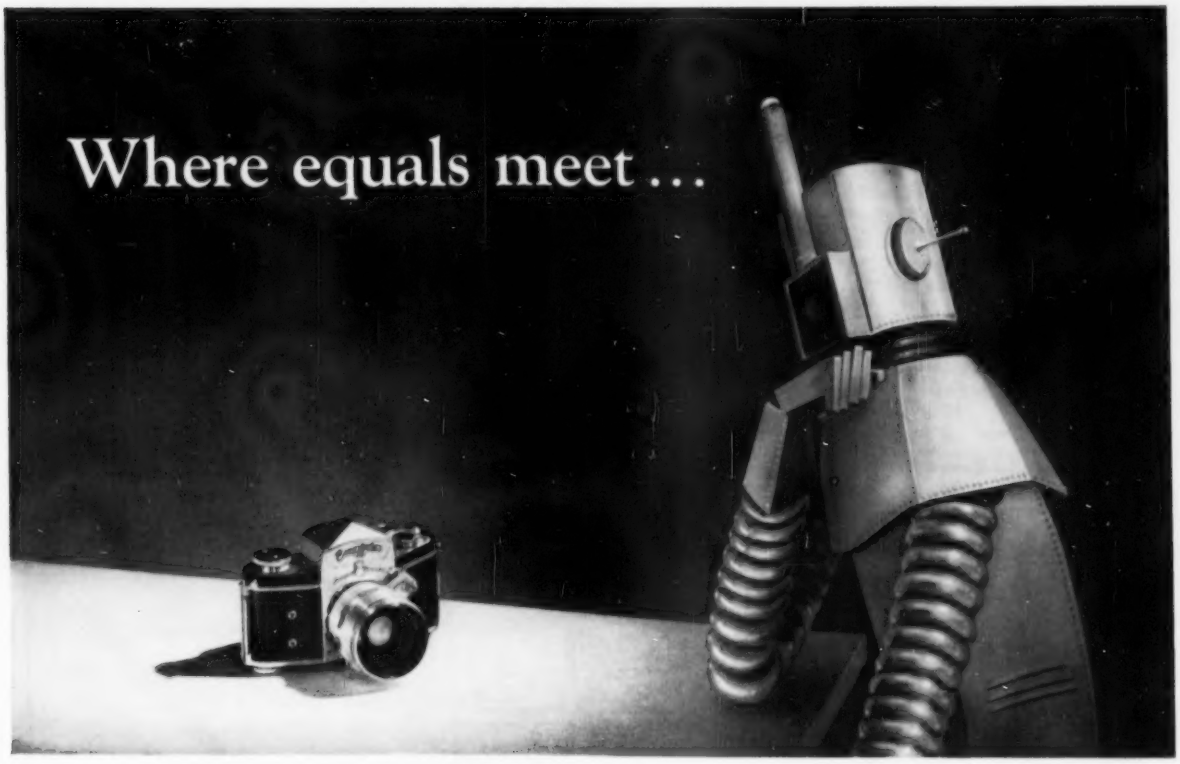
Mount Vernon Camera Club of the Y.M.C.A., Harold W. Steiger, 630 E. Lincoln Ave., Mt. Vernon, N. Y.

We hear Joe Collins is new editor of *Spokane Camera Club's* "Groundglass." He succeeds the hardworking Bruce Garrick, whose two years on the job put the bulletin in fine shape indeed.

Chatham (Ontario) *Camera Club's* bulletin "Out of Focus" carried a wistful sort of print subject assignment notice earlier this year. Went like this: "Trains (but no model railroads, please!)"

Very interesting club bulletin is the first issue of "The Creative Camera" (that's what they call it) put out by *Creative Camera Artists of Cincinnati*, 3727 Glenmore, Cincinnati 11, Ohio.

Is your club on our mailing list? If not, please send name and address to: POPULAR PHOTOGRAPHY, Department 307, 366 Madison Ave., New York 17, N. Y.



The Automatic Age is no longer categorized among "things to come". It is here! In many fields, Mechanical Men are performing wonderful things. In the field of photography too, there is an Automaton . . . the Automatic Exakta VX.

The Automatic Exakta VX with Penta Prism eye-level viewfinder and Split-image Rangefinder and 58-mm, f/2.0 Automatic Zeiss Biotar Lens is priced at $392. Also available with waist-level finder. The Automatic Exa has most of the advantages of 35-mm, automatic, single-lens, reflex photography in a camera foolproof enough for a child to use. The Automatic Exa is equipped with the 50-mm, f/2.8 Automatic Isco Westanar, and is priced at $129.50. Automatic Exa with Isco Westanar f/2.8, 50-mm lens and Penta Prism, $159.50. Automatic Isco Westanar lens alone, $69.50.

Put an Automatic Exakta VX or Automatic Exa to the test, and you will see the Automatic Age of photography in motion . . . Today!

Your dealer will gladly demonstrate these outstanding cameras to you.

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At An Exceptional Price!

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- 300 Watt
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- For 2x2 Slides

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If you own a LEICA, CONTAX, CANON, NIKON, EXAKTA, PRAKTICA, PENTACON, CONTAX-S or most any other camera with interchangeable lenses . . . write today for our **FREE BOOKLET** on how NOVOFLEX ACCESSORIES expand the use of your camera.

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1½" f1.4 SPECIALS!	$29.95
1½" f3.5	7.50
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LENS	f3.5	f3.5	f3.5	f3.5
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SPEEDS	1-1/300	1/10-1/200	1/10-1/200	1/25-1/100
FILM TRANSPORT	Automatic	Manual	Manual	Manual
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CLOSE OUT!

LIMITED QUANTITY!

In closing out these fine precision cameras the German manufacturer made us promise not even to hint at his name, so we won't. However, after one look at these specifications it won't take you long to guess.

REMEMBER! You can't go wrong. Your money back overnight, if you don't lick your chops when you see your lucky purchase.

- f2.8 Steinheil Cassar Color corrected lens
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Brand New Deluxe case	$5.95
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f2.9 Ctd. Praktica Lens —Reg. $99.50.

f1.9 Coated Primoplan Preset Lens	75.95
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Camera Case, & Flash Gun $06.50

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1. Select the equipment of your choice at the prices shown in column one for new equipment or column two for used equipment.
2. If you have equipment to trade, check if it is represented in listing and deduct the allowance shown for it in column three.
3. Rush your order (and trade-in equipment if you have such) plus your remittance to cover—or instructions to ship C. O. D. for the balance or deferred payment terms as per your instructions.

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Price includes—Christmas Cards, Matching Envelope and either (A—1⅛ x 1½) or (B—2½ x 3¼) color print from any selection of Transparencies you desire.

PRICE LIST

Print Size 1⅛x1½	Print Size 2½x3¼
28 for $2.75	12 for $3.50
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DELIVERY—1 WEEK

Cards and Envelopes may be ordered without Prints
25 Cards and 25 Envelopes for $1.75

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28mm f3.5 Nikkor-g W.A.	$149.50	$ 97.50	$ 70.00
35mm f3.5 Nikkor-g W.A.	97.50	57.00	40.00
50mm f1.4 Nikkor-g	199.50	118.00	80.00
50mm f2 Summitar	88.00	62.95	40.00
50mm f1.5 Summaritg	177.00	109.95	80.00
85mm f1.5 Serenarg	238.00	137.50	110.00
85mm f2 Sonnarg Tele	229.00	99.50	75.00
135mm f3.5 Nikkorg	145.00	85.00	62.00
135mm f4 Serenarg	108.00	69.00	50.00
200mm f4.5 Telytg	156.00	104.00	75.00
400mm f5.6 Novoflexg	189.50	.....	85.00

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35mm f2.5 Angenieux g	$ 99.50	$ 56.95	$ 45.00
50mm f2.8 Westanar Auto Diag	69.50	44.50	30.00
50mm f2 Biotar preset g	125.00	63.95	45.00
75mm f1.5 Biotar g	216.50	93.95	70.00
90mm f1.8 Angenieux g	149.50	95.95	75.00
90mm f4 Sun preset g	64.95	33.50	25.00
135mm f3.8 Sun g	59.50	29.50	20.00
135mm f4.5 Tele Xenar g	84.95	49.50	35.00
240mm f5.5 Tele Xenar g	115.75	78.00	55.00
400mm f5.6 Novoflex g	189.50	.....	85.00
400mm f5.5 Tele Megor g P.S.	199.50	137.50	100.00

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	New	Used	Trade-in
Leitz Focaslide	$ 36.00	$ 23.00	$ 15.00
Leitz Imarect Finder	39.00	24.00	16.00
Leitz B. C. Flashgun	24.00	16.95	12.00
Zeiss Revolv. Univ. Finder	80.00	42.75	30.00
Novoflex (Exakta, Pentacon)	34.50	.....	15.00
Novoflex Reflex Housing for Leica Canon	99.50	.....	50.00
Novoflex tripod Rackover	18.50	.....	12.00
Novoflex Panoramic attach	11.50	.....	.....

LEICA CONTAX NIKON CANON

	New	Used	Trade-in
Contax I f2.8 Tessar	.....	$ 46.00	$ 25.00
Contax III f2 Sonnar	.....	99.50	75.00
Contax IIA f2 Sonnarg*	$345.00	148.50	125.00
Contax IIIA f1.5 Sonnarg*	412.00	194.50	165.00
Leica IIIA f2 Summar	.....	84.50	65.00
Leica IIIC f2 Summitarg	.....	119.95	100.00
Leica M3 f1.5 Summaritg*	468.00	.....	230.00
Nikon S2 f2 Nikkor g	299.50	.....	150.00
Nikon f1.4 Nikkor g	299.95	167.50	125.00

35MM SINGLE LENS REFLEX

	New	Used	Trade-in
Contaflex II f2.8 Auto RF Meter	$199.00	$129.00	$100.00
Exa f2.8 Westar MXg	85.00	44.50	35.00
Kine Exakta f3.5 Tessarg*	.....	69.95	50.00
Exakta VX f1.9 Auto Xenon	341.70	195.95	155.00
Exakta VX f2 Auto Westagon	279.50	169.00	140.00
Contax D f2 Biotar P.S.c*	199.00	118.95	80.00
Praktiflex f2 Biotar g	89.00	69.00	45.00

35MM CAMERAS

	New	Used	Trade-in
Argus C-3 RF case and flash	$ 66.50	$ 31.50	$ 28.00
B&H Foton f2 RF MX	498.00	265.00	200.00
Bolsey B22 f3.2 RFc*	69.50	35.50	30.00
Kodak Bantam R.F. f3.9g	56.75	39.50	30.00
Contessa f2.8 RF meter MXg*	.....	83.95	60.00
Kodak Retina IIIC f2, R.F.c	185.00	116.95	85.00
Kodak Pony 828 f4.5 C*	$ 29.50	$ 16.95	$ 12.00
Kodak Retina IIA RF MXg	.....	71.50	60.00
Kodak Signet f3.5 Ektar RFC* (Case and Flash)	92.50	41.75	35.00
Minox IIIS chain and case*	139.50	78.95	60.00
Mercury II f2.7g*	41.50	18.95	12.00
Robot II f2 Biotar Rap Seq.	.....	54.00	30.00
Robot Star f1.9 Xenon	127.50	78.95	55.00
Voigt Prominent f2 RF MXg	220.00	130.95	100.00
Voigt Vitessa f2 RF MXg	127.50	82.50	55.00
Voigt Vito II f3.5g*	54.50	23.95	15.00

35MM STEREO CAMERAS

	New	Used	Trade-in
Kodak f3.5g*	$ 84.50	$ 50.95	$ 35.00
Revere f3.5 RFg*	174.50	73.95	60.00
Realist 45 f3.5g	88.50	.....	40.00
Stereo Realist f3.5 RFg*	159.00	65.95	55.00
Stereo Realist f2.8 RFg*	192.50	106.95	90.00

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	New	Used	Trade-in
Ampro 731R 3¾ 7" Reel	.....	$ 49.00	$ 25.00
Ampro Hi-Fi 2 Speed 7" Reel	$239.95	139.50	105.00
Federal FME 2 speed 7" Reel	139.50	86.00	60.00
Pentron 9T-3C 2 speed 7" Reel	189.50	99.50	85.00
Pentron HT-225 s speed 7" Reel	225.00	137.50	105.00
RCA 402 2 Speed Remote Control	229.95	159.00	110.00
RCA SRT301 2 speed 7" Reel	.....	99.50	70.00
Revere T100 3¾ 5" Reel	169.50	74.50	50.00
Revere T1100 2 Speed 7" Reel	159.50	92.50	75.00
Revere T7000 2 Speed 7" Reel	212.50	129.50	110.00
TBC Stereotone 2 Speed 7" Reel	249.50	138.50	110.00
Webcor 2020 2 Speed Push Button 7" Reel	169.50	107.50	80.00

2¼x2¼ REFLEX CAMERAS

	New	Used	Trade-in
Ikoflex IIA Auto f3.5 Tessar MXg*	$126.00	$73.95	$60.00
Ricoflex VI f3.5g*	44.95	18.75	12.00
Rolleicord V f3.5 Xenar MXg	134.55	87.95	70.00
Rolleicord III f3.5 Xenarg*	.....	59.95	45.00
Auto Rollei f3.5 Tessar	.....	88.95	65.00
Auto Rollei 11B f3.5 Tessarg*	.....	107.50	85.00
Auto Rollei f3.5 Xenar MX	217.50	116.95	100.00
Auto Rollei f3.5 Tessar MX	232.50	126.95	110.00
Auto Rollei 2.8 C Xenotar MX	291.50	182.95	150.00
Hasselblad 1000F f2.8 Ektar	379.50	198.50	175.00

ROLL FILM CAMERAS

	New	Used	Trade-in
Kodak Chevron f3.5 RF	$198.50	$127.50	$100.00
Kodak Medalist I f3.5 Ektar	.....	53.95	40.00
Polaroid Highlander	69.95	42.50	30.00
Polaroid Landg*	89.75	38.95	30.00
Polaroid Pathfinder f4.5 RF	249.50	146.95	120.00
Super Ikonta BX f2.8 RF	163.00	99.95	75.00

PRESS CAMERAS

	New	Used	Trade-in
45 Ann. Graphic RF f4.7 lens	.....	$ 95.95	$ 75.00
4x5 Linhof Super Tech RF f4.5 MX	$389.75	206.95	165.00
2¼x3¼ Pacemaker Speed f4.5 KRFg*	313.95	146.95	120.00

SLIDE PROJECTORS

*Blower Cooled	New	Used	Trade-in
Argus PB 300 case*	$ 48.50	$ 25.95	$ 20.00
Goldf. Coronet 300 W case*	44.75	21.95	15.00
Kodaslide Signet 300W*	59.50	.....	30.00
Kodaslide Table Viewer 4x	.....	27.00	20.00
LaBelle 22 Automatic 200 W*	69.00	46.50	35.00
LaBelle Director 300W Auto	59.50	.....	30.00
Revere 555 500W Auto Case	79.50	.....	40.00
SVE Instructor 300 W	89.50	57.50	40.00
Guide Manumatic 300W*	58.50	25.95	20.00
LaBelle 55 Automatic 500W*	79.50	49.95	35.00
TDC Headliner 300W Semimatic*	49.99	28.50	20.00
TDC Model D 300 W Semimatic*	67.50	31.95	25.00
TDC Duo 300W 2¼*	67.50	33.95	25.00
TDC Stereo Projector View 300W*	144.50	96.50	70.00
Viewlex V33L 300W Auto*	67.00	38.95	30.00

8MM CAMERAS

	New	Used	Trade-in
B&H 134V f2.5g	$ 89.95	$ 40.00	$ 30.00
B&H 252 f2.3 Montereyg	59.95	38.95	28.00
Bolex 8mm Pancinor f2.8g	219.50	141.95	110.00
Bolex B8 f2.8 Yvar Turg	119.50	68.50	55.00
Bolex H8 Leader f1.9 Turg	259.50	143.95	115.00
Revere 84 f1.9 Turg	147.50	83.95	70.00
Revere 44 f1.9 Mag Turg	154.50	93.50	65.00
Cine Kodak Magazine f1.9g	149.50	68.95	55.00
De Jur Fadematic f1.9g	149.50	92.95	65.00
Keystone K-32 Olympic f2.5g	79.95	45.95	30.00
Revere 50 f2.8g	49.50	23.95	18.00
Revere 88 f2.5g	74.00	32.95	25.00
Revere 80 f2.5g	97.50	83.95	35.00
Revere B63 f2.5 Mag Turg	142.50	83.95	58.00
Zoomar 8 f2.8 Lens	199.00	.....	110.00

8MM PROJECTORS

	New	Used	Trade-in
Ampro Futurist 750 W Case	$149.95	$ 84.50	$ 60.00
B&H Monterey 500 W Case	79.95	49.95	35.00
Bolex M8500 W Case	169.50	112.00	85.00
De Jur 1000 W Cordomatic	177.50	104.95	85.00
Keystone K109 750W Spicer	159.50	88.00	65.00
Kodak Brownie 300 W Case	62.00	39.50	30.00
Revere 85 500 W	114.50	58.95	45.00
Revere 98 750 W	125.00	66.95	50.00

16MM CAMERAS

	New	Used	Trade-in
Arriflex 16 (comp. 3 lenses)	$1990.00	$1300.00	$1000.00
B&H 200 f2.5 Magg	174.95	108.00	85.00
B&H 70DA f1.9 Tur	.....	149.00	110.00
Bolex H16 Leader (3 lenses comp)g	399.45	229.00	180.00
Bolex Pan Cinor f2.8 casegg	349.50	199.00	165.00
Bolex Stereo	.....	145.00	75.00
Cine Kodak K100 f1.9	269.00	.....	130.00
Cine Kodak Royal Mag. f1.9g	169.50	104.50	80.00
Keystone A12 f1.9 Turg	159.50	97.00	70.00
Keystone K50 f2.5 Maggg	129.50	82.50	60.00
Pathe Super 16 Turg	450.00	229.00	180.00
Revere 16 f1.9 Maggg	182.50	87.00	60.00
Victor IV f1.9 Tur	.....	99.00	65.00
Vistascope Outfit Case	125.00	.....	65.00

16MM PROJECTORS

	New	Used	Trade-in
Bolex G-8 16 750 W 8 x 16mm	$339.50	$235.00	$150.00
B&H 273A Statesman 750 W	199.95	117.50	90.00
B&H 173 Diplomat 1000	299.95	185.00	135.00
Keystone A82 750 W Case	139.50	75.50	60.00
Keystone K161 750 W Spicer Case	159.50	85.00	65.00
Kodascope Royal 1000 W	240.00	164.00	115.00
Revere 48 750 W	160.00	95.00	60.00

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5. Pictures will be judged on technical excellence and general interest. Those with human interest and/or animation will be preferred.
6. Prize-winning pictures become the property of Carl Zeiss, Inc., and negatives of such pictures must be released to Carl Zeiss, Inc. for advertising purposes.
7. Prints of non-winning pictures will be returned to their owners.
8. Contest is open to residents of the United States and its territories. Employees of Carl Zeiss, Inc. and members of their families are not eligible.
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stereo today

by Robert L. McIntyre

Hocus Focus

One of the recent budget-priced stereo cameras has been stirring up a lot of interesting technical discussion. It's the Stereo-Graphic, a fixed-focus outfit with *f*/4 lenses that have phenomenal depth of field—4 feet to infinity. Wait a minute before you reach for your slide rule to prove it can't be possible. That's the depth you get with both lenses together, not with either one alone.

The Stereo-Graphic makes use of a principle that is unique to stereo. It is the first modern 3-D camera with lenses deliberately built to focus at different distances. One is set to render distant objects sharp, even when used wide open. The other favors nearer subject matter. With objects at infinity critically sharp in the left-eye view and nearby subjects crisp in the right, you can find detail wherever you look for it.

This is where depth-of-field tables fail and psychology takes over. What goes on when one eye is presented with an image that is sharp and the other sees a picture slightly blurred? Apparently we see what we are looking for. If we scan the distant portions of a scene, we find detail in the left-eye view. When we explore material in the foreground, the right eye does the work.

Maybe nobody should ever mention it, though. Once you start closing your eyes alternately and trying to discover differences between the two images, you are able to discover that lack of sharpness. There is less chance of spotting it in sunny-day slides taken at relatively small apertures or in average views that don't show anything particularly detailed that is very near or far. The areas rendered sharply by the two lenses overlap to cover the important parts of many scenes. Why did they build the camera that way? It made possible the fixed-focus lens system for simplicity in operation and economy in manufacture.

The camera's shutters have a fixed speed of about 1/35 second and a "bulb" setting for time exposures. Apertures range from *f*/4 to *f*/16 and are marked in terms of light conditions required for Kodachrome as well as *f*-numbers.

Eruption in 3-D

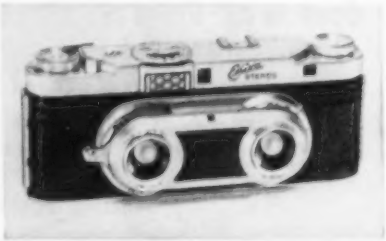
The Puna eruption on the flank of Hawaii's Mauna Loa this spring was the first disturbance of its kind to be documented thoroughly in modern color stereo. Fred Rackle of Honolulu did the job, spending 53 days and nights in the area of the eruption on 18 separate flying trips during different phases of its activity. He carried three Stereo Realists for basic shots, a pair of Rolleiflexes for taking extended interocular pictures on the ground and a Bell & Howell Foton for shooting stereo pairs from the air with a brief time lag between exposures to give exaggerated depth.

His biggest problems were personal rather than photographic. Working across the fronts of slow-moving but relentless flows, he had to plan every move to make sure his own avenue of escape was not cut off. Shooting faster flows from the side seemed safer, but the best vantage points were atop the hardened crust at their sides. It remained hot, with a molten core beneath its surface that blistered his feet when he stood too long in one place. Canteens ranked with cameras as essential equipment. Nearby trees and stalks of sugar cane dried out and burst into flames and the photographer kept feeling he would suffer the same fate if he didn't withdraw for water.

Thirty of Rackle's best volcano pictures, all taken in the regular stereo format, have been duplicated in an exciting slide set. They are available from Hawaiian Stereos, P.O. Box 2874, Honolulu. They cost $1.25 each in quantities of less than 12, $1 each for more. You can write for a folder that describes them.

Built-in Exposure Meter

Outstanding feature of the newest stereo camera on the market, the Edixa IIIA, is a built-in photoelectric exposure meter. The camera is an import manufactured by Wirgin Brothers Camera Works in Wiesbaden, Germany. The meter is calibrated in ASA exposure indexes for American users as well as the



Din system for European fans. It is not coupled to lenses or shutters, but is built into the case without increasing its bulk so the user can keep an exposure meter with him without having to keep track of an additional piece of equipment.

The Edixa's meter is of the reflected-light-reading type. When used at camera position, it averages the light reflected by different parts of the scene. This system works well when the part of the scene that is most important is of average lightness. When the photographer wants to bring out something in a shadow area, or in a highlight, the general reading must be modified. Usually the best way to do this is to walk into the picture setting and take a reading from a position close to the thing that counts, so you read only light reflected by it. Then you move to your preselected camera position to take the picture.

Other features of the camera include coupled film transport and shutter cocking, double-exposure prevention, 35-mm *f*/3.5 Steinheil Cassar lenses in Prontor SVS shutters, speed range from 1 to 1/300 second, built-in self-timer, flash synchronization, and a direct, eye-level finder. The IIIA is priced at $99.50.—

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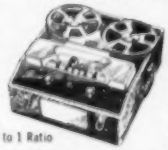

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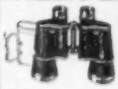

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legal problems in photography

By George Chernoff and Hershel B. Sarbin
Members of the Bar of the State of New York

Canon 35

Camera in the Courtroom*

Canon 35—the subject of Mr. Joe Costa's article in this issue of POPULAR PHOTOGRAPHY—contains some rather harsh language about the effect of courtroom photographs on the conduct of a public trial.

The language is, in fact, too harsh, as a Waco, Texas photographer was able to demonstrate so clearly just a few months ago.

The photographer we refer to covered a murder trial in a Waco courtroom with a 35-mm camera, and he did it without the Judge's permission. What is more, the Judge did not know the pictures were being taken until he saw them in the newspaper.

Was the Judge angry? Hardly. He was quoted as saying: "The public is entitled to know what is taking place in a public trial. Pictures can sometimes tell more than words."

We are not, of course, recommending to photographers that they follow the example of this Waco cameraman. For Canon 35 is rigorously observed by most courts in the land, and we would not like to be responsible for a contempt citation against any of our readers.

The fact remains, however, that the camera is a much more unobtrusive recorder of courtroom events today than it was when Canon 35 came into being many years ago.

During the course of a recent investigation of New York State trotting tracks, a newspaper photographer was ejected from the hearing room when it was discovered that he was taking pictures with a concealed 35-mm camera. He had been taking the pictures for 2½ days without affecting the decorum of the courtroom. Despite the fact that he had taken over 30 pictures of political figures as they were testifying, no one had seen him operate the camera.

In the face of such evidence, it is difficult for Mr. Costa, for us, and for photographers generally to understand the continued vitality of Canon 35 in its present form.

One interesting case involving Canon 35 took place in Cleveland, Ohio, last year when three staff members of the *Cleveland Press* were convicted of contempt of court for taking a picture at the arraignment of a prisoner charged with embezzlement. The Judge had told newsmen that no pictures were to be taken, and the attorney for the defendant quoted the Judge as saying that "The ban had been imposed because otherwise he would be disciplined by the Cleveland Bar Association."

The newspaper's position was well stated by Mr. Louis B. Seltzer, editor of the *Press*, who said:

"It is our basic argument, apart from the direct issue involved, that photographic science has made picture taking in a courtroom beyond the claim that it distracts or intrudes on the proceedings in a court room, and is essentially no different than a reporter covering a trial with his pencil and pad.

It is the further contention that under a broad interpretation of the constitutional guaranty of a free press in this democracy that the people's right to know endows the free press not only with ears to write but eyes to illustrate modern court proceedings."

Mr. Seltzer's argument did not prevail, however, and the Appellate Court in Ohio supported the judge's ruling. The Court said in part: "The rules of courtroom conduct must be such as to remove it from the distractions and disturbances of the market place, and to maintain as nearly as possible an atmosphere conducive to profound and undisturbed deliberation . . . The flashlight inevitably startles those nearby when used without notice. Its use is not conducive to sustained mental effort. If a photographer can take one picture he can take two or a dozen."

In reaching its decision the Court cited a Supreme Court Case which gave the State and Federal Courts "the power to protect themselves from disorder and disturbances in the Courtroom."

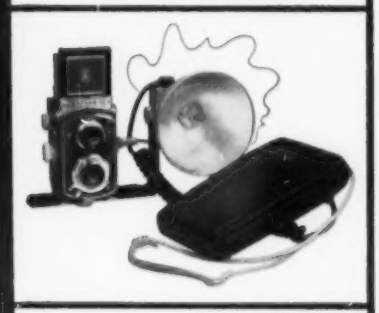
The banning of courtroom photographs is not always the Judge's doing, however. In a recent Tennessee murder case, the Judge had ruled that he would permit pictures during the trial, if the photographers did not use flash bulbs. The photographer explained that he was using a camera that did not require flash bulbs and that he would place himself in an inconspicuous position in the courtroom.

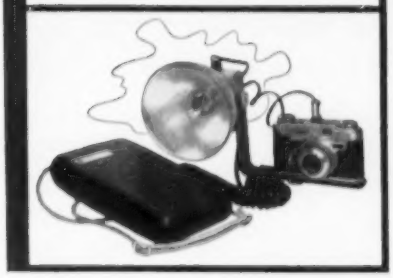
Subsequently, however, the attorney for the defendant objected to the picture-taking, and the Judge sustained the objection.

Despite the universally severe criticism of Canon 35 among photographers, we have always noted in discussing the subject with them that they recognize the inherent right of a Judge to control the conduct of a trial over which he is presiding, and the necessity of maintaining order in the court room.

We are convinced that the Committee of the American Bar Association presently reviewing Canon 35 must, if it gives the question serious and impartial consideration, arrive at a result more satisfactory than the antiquated rule being enforced by the courts today.—

*See *Camera in the Courtroom*, by Joseph Costa, page 74.





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Specifications for Stroboflash I: energy storage, 50 *watt-seconds;* flash duration, *1/1400 second;* approximate guide numbers for average room, *Daylight Kodachrome*—35, *Ektachrome*—50; *Anscochrome*—50, *Super XX*—160, *Royal Pan* or *Tri-X*—200; recharging time, 3 seconds; synchronized for any X-type shutter; equipment includes power pack, lamp head, L-bracket and rubber battery case adapter for lamp head.

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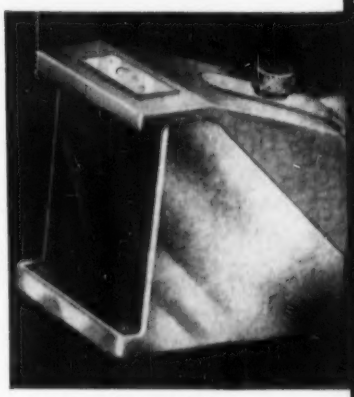

Introduced into the United States with less fanfare than accompanied Cinerama, Cinemascope and other wide-screen Hollywood techniques, the Vistascope lens is now giving amateur and professional photographers new horizons in picture taking. Shooting from cars, roller coasters, speedboats and airplanes, home movie and slide camera owners are thrilling their friends with big, spectacular pictures containing overwhelming impact and three-dimensional realism.

The Vistascope lens is an anamorphic optical system similar to that used in making Cinemascope pictures. It retains the full image size without distortion. Anamorphic lenses form one image with two different focal lengths, one for height, the other for width, thus securing three-dimensional quality.

Like Cinemascope, Vistascope supplements the lens used on the camera. When attached in front of the regular lens, Vistascope 'squeezes' 50% more horizontal area onto each regular frame of film. Then, when placed on the projector, it 'unsqueezes' the image, projecting the wide picture onto wall or screen with forceful realism. Vistascope is the first anamorphic system to produce color slides for the amateur photographer.

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The Vistascope anamorphic lens is easy to use as it only requires a sunshade adapter ring to fit any camera lens. Standard cameras, color or black and white film, processing, screen and projectors are used. The picture above shows Vistascopes attached to various equipment.

The principle was developed after years of research by Dr. A. Bouwers of Delft University, Holland. A world-renowned physicist, he invented the universally used rotating anode X-ray tube.

The scene on the left was taken with a normal movie lens. The scene on the right, taken with a Vistascope lens, contains 50% more picture — without distortion or loss in image height. Glasses are not necessary to secure a 3D effect when viewing Vistascope films.

At $75.00 for 8mm. movie cameras and projectors, and $125.00 for 16mm. movie and 35mm. slide cameras and projectors, and Rolleiflex with Rolleikin, the Vistascope lens is within the pocketbook range of most camera fans. For complete information, write to Godfrey Corporation, Box 845, New York 8, N. Y., Dept. P-11.

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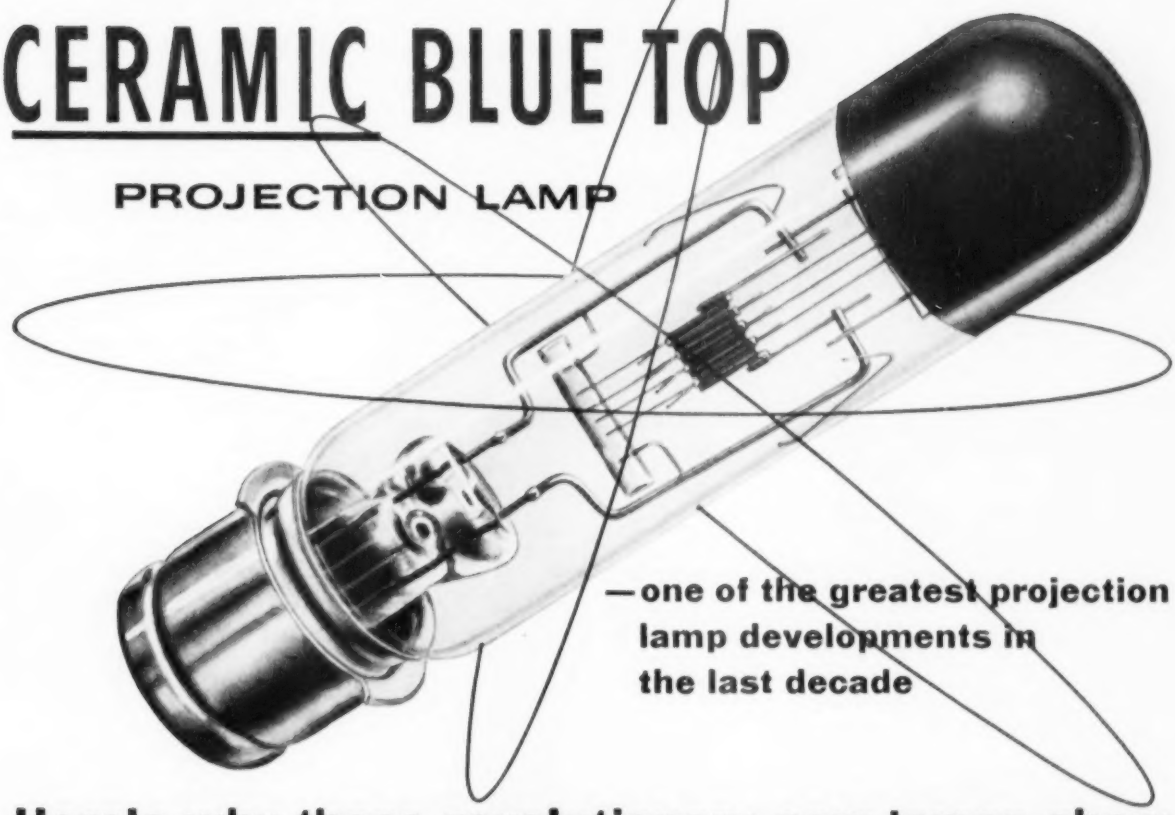

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35-mm today

By Bob Schwalberg

Making the most of 36 exposures

One of the 35-mm man's potentially most valuable assets, and one which scarcely receives more than passing reference in the literature of 35, is the miniature camera's very large film capacity. Loaded with a full 36-exposure cartridge, the 35-mm camera provides three times as many shots as the popular 2¼x2¼ roll-film format.

This is a lot of film, and the advantages of having so many negatives right on tap in the camera are fairly obvious. We can make more pictures without having to reload, and we're that much less likely to lose pictures by being caught at the end of the roll. And, coupled with the silky-smooth automatic film transports of modern miniatures, many of which are now equipped with lever-action rapid-winding mechanisms, the 35 can make picture after picture in rapid succession.

Coupled with the 35-mm camera's ease of operation, this large negative capacity gives the photographer a freedom in shooting which he can enjoy with no other camera. The essence of 35-mm photography, in this writer's view, is not solely confined to the quick, unobtrusive camera that is easily adaptable to varied subject and shooting conditions by means of interchangeable lenses and myriad accessories. A large part of the basic idea of 35-mm photography is the ability quickly and easily to make many pictures instead of remaining satisfied with the tarnished virtue of "getting the picture with one piece of film."

You make a picture and transport the film quickly. Your subject changes her expression slightly. You shoot again. You notice a better background angle. You shift position and shoot again. And so on. Before you realize it you may have six, eight, or umteen images of the same general scene. You have different expressions and arrangements, the effect of different camera angles and shooting distances, etc.

Sometimes, sad to say, the mechanical perfection of a good miniature tends to encourage overshooting, or, to use the professional term of derision, "percentage shooting." A percentage shooter is an unimaginative (albeit energetic) type who isn't really sure what he wants to photograph, and a bit shaky in his thinking about what makes a good picture. So, to play it safe he shoots everything and anything which his ubiquitous viewfinder happens upon in the hope that maybe somewhere, somehow, he'll have a picture that's worthwhile.

But there's a mighty big difference between the percentage shooter and the man who exploits the miniature's film capacity intelligently by shooting around a subject, and the difference has absolutely nothing to do with how many times one shoots the same general subject before he's satisfied. If I may be permitted to go cornball for just a moment, the 35-mm camera really is a kind of sketchbook on whose pages (or negatives) we record the varied views and impressions that make up our total impressions of a scene or event which has interested, excited, or moved us in some way. Anything which doesn't do something to us wasn't worth photographing in the first place. And anything which *did* move us should deserve more than a single try.

Critics of this way of shooting hark back to the beginning days of photography when pictures were made on heavy glass plates, and anyone who shot the same subject twice was looked upon as an idiot or wastrel. These people seem to forget that it isn't the number of negatives that counts but the number of different pictures one can extract from a situation. The good 35-mm man plays for the accident. After photographing a group of people he notices that they suddenly relax, break into sighs of relief, and begin to be normal people once again now that the camera is no longer on them. Without hesitating the camera goes up to his eye in one fast movement and he grabs a second shot which almost always will be better than the first one. Of course, the man who shoots only one negative of each subject has nothing with which to compare it, so he's either happy with his picture or he isn't.

Sometimes playing for the accident means raising the camera and shooting fast without being 100 percent in focus or setting your diaphragm or shutter speed the way you need it. After the grab shot has been made, one can set his focus or exposure right and make a second frame to be sure. But chances are that if the grab shot turns out sufficiently sharp and properly exposed it'll be a better picture.

To raise your grab shot batting average it's a good idea to have your camera set at the correct exposure and focused upon some intermediate distance within the depth-of-field limits of the lens aperture you're using. If you wait to take a meter reading and move your lens from the infinity setting until you actually see a picture you're not going to get many pictures which otherwise would be easy. Walking around with a 50-mm lens on your camera in search of pictures, for example, with your lens stopped down to *f*/8 and a distance-scale setting of twelve feet, will bring everything from about nine to nineteen feet from you in acceptably sharp focus. Every once in a while, read your meter as lighting conditions change so you won't have to worry about the exposure at critical moments.

Aside from the fact that shooting a number of different versions of the same picture enables us to appraise the negatives in the darkroom and print our best pictures, this fundamental approach to photography helps us to progress more rapidly and teaches lessons which otherwise would take much longer to learn. The simple act of analyzing a contact

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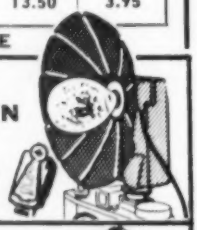

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sheet showing the different ways in which we attacked the same subject forces us to think in terms of picture values and to make critical judgments and comparisons between different approaches. In the beginning we all tend to take more shots of the same subject than we do later on. But the reason why a seasoned photographer may shoot less negatives of a given situation is not necessarily due to some God-given gift. Chances are he learned what he knows by shooting the "pictures around the picture" until it became second nature.

The New F. R. High-Resolution Developer for Thin Films

Since we published the article on the Adox super-fine-grain, high-resolution thin films, KB-14 and KB-17 in the May 1955 issue, we have continued our experiments with other methods of developing films of this type. Of the several formulas we have worked with, only one is noteworthy. This is F.R.'s recently announced X-22 formula, which, in most respects, is superior to any of the developers used in the original article.

X-22 combines the very sharp resolution of the grainiest of the thin-film developers, Rodinol, with fine grain on a par with that obtained from any of the less active soups mentioned in the story. In addition to this, X-22 offers somewhat higher emulsion speeds for use with Adox KB-17 than the rating of ASA 50 which we recommended for use with the original list of developers. With X-22 development, KB-17 may be very advantageously rerated at ASA 64 or 80, the lower rating being preferable in contrasty lighting, the higher one when the lighting or subject contrast is on the flat side. X-22 is very effective when used with KB-14, but the rating of ASA 25 which I originally recommended still holds true.

The developer, which will be marketed shortly, will be sold in one-ounce plastic packets of liquid concentrate covered over with a layer of heavy tinfoil. Different dilutions are recommended for each film. For KB-14 the developer is diluted 1:19; for KB-17, 1:15. Development is at 70 F.

F.R. recommends a 9-minute immersion for KB-14 and an 8-minute immersion for KB-17 at the dilutions indicated. In my experience, however, when shooting under average conditions, these times are a little bit too short and my negatives were on the flat side. An increase of two to four minutes in different cases eliminated this difficulty with no appreciable increase in graininess. X-22 is not, however, a real fine-grain developer in the sense that X-33B, Microdol, P-60, et al, are fine-grain developers, and it is excessively grainy when used with normal medium-speed films like Plus-X and Supreme. Used in conjunction with thin films like KB-14 and KB-17, however, it will produce phenomenal negative resolution with extreme fine grain For an excellent discussion of this developer see the Summer 1955 issue of *Leica Photography* which has the story out of the horse's mouth, by Bob Richard, F.R.'s chief chemist, who concocted the soup. —▶

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POLAROID CORPORATION ANNOUNCES A NEW KIND OF LAND FILM TO MEET PROFESSIONAL REQUIREMENTS

THE ENGRAVING AT LEFT WAS MADE DIRECTLY FROM AN ORIGINAL PICTURE TAKEN WITH POLAROID® PROFESSIONAL PAN LAND FILM

Professional Pan is a new Polaroid Land film designed for professional and technical photographers and for critical amateurs. It has nearly twice the resolving power of our Type 41 film, to give you added sharpness in your pictures. It has over twice the dynamic range, to match all the light values of nature. It has twice the speed. It offers effective control of contrast, so you can make your pictures subtle or snappy as you choose. It is panchromatic.

Excellent for enlargements and engravings

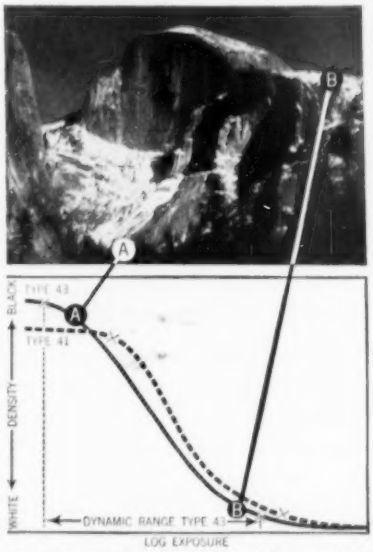
During the last year or two, we have changed our films in many ways, to make the most of the natural sharpness of the Land process and its freedom from graininess. In making Professional Pan Type 43, special coatings are applied under the negative emulsion, to get a glass-smooth surface. The result is a print so sharp that it produces amazingly crisp halftone plates, under the uncompromising eye of the engraver's camera, at enlargements of three diameters and more.

You can also make photographic enlargements of excellent quality, working either with copy negatives made in your own darkroom or with the negatives that Polaroid's Copy Service Department makes for you on a new copy-negative film that preserves the delicate tone-values of the original.

Faithful detail in both light and shadow areas

As important as its high resolving power, is the film's wide dynamic range. With Professional Pan, you can faithfully reproduce both highlight and shadow detail in any scene you are ever likely to come across. The curves on the chart will show you why. In the solid line, you see the lights and darks of a finished Polaroid Professional Pan Land print plotted against the exposure made with the camera.

The chart also shows where the measured brightness-levels of an actual outdoor scene fall on the curve. This scene was selected for its high contrast-range. But with Professional Pan, you have a comfortable match for it. You hold the texture of the sunlit snow with no "burning-out" of detail. You also reproduce the subtle variations in the blacks that put depth in the heavy shadows.



The extended dynamic range of Professional Pan (solid line) holds low-brightness detail (A–A) as well as high-brightness detail (B–B) in high-contrast scene, with range to spare. Dotted line: Type 41.

The dotted curve in the chart shows our regular Type 41 film. This behaves very nicely in most situations. Even on dull days it turns out the snappy prints that many snapshooters prefer. But in a scene as harshly lighted as this, you would burn-out the highlight detail or black-in the shadows, one or the other. With Professional Pan, you hold both.

With Professional Pan, you actually have enough dynamic range left over on most shots to give you some leeway in choosing exposures. To get a sun-drenched, high-key effect in your print, you can often double the correct exposure. To get a rich, low-key effect, you can cut it in half. Both prints will be good, photographically, with all the detail present. But they will be totally different in mood.

Controllable contrast

The new film has another remarkable feature. You can control its contrast. To get extra contrast into your picture, you simply leave it longer in the camera — say 90 or 120 seconds. The whites in the picture will stay nearly the same, but the greys will grow darker and the blacks blacker, to give you a vivid, dramatic print. If the scene is over-harsh and you want less contrast in the picture, you take the picture out quicker — say in 35 seconds. The greys will be lighter and blacks less black, to give you a quieter, softer print. The choice is like the one you make in the darkroom when you pick the film-development time or the grade of printing paper to fit a given negative. But here of course you can make the choice right on the scene. You can revise it then and there, as you match your picture against the possibilities of your subject and apply your own creative judgments.

With Professional Pan you need not be satisfied with a literal translation of the scene. You can call your own tune—high-key or low-key, soft or snappy.

POLAROID LAND FILMS

PROFESSIONAL PAN
Panchromatic, extended dynamic range (60-100), controllable contrast, high resolving power, speed 200 (ASA equivalent).

POLAROID POLAPAN 400
Panchromatic, extended dynamic range (50), normal contrast, speed 400.

POLAROID POLAPAN 200
Panchromatic, extended dynamic range (50), normal contrast, speed 200.

TYPES 41 AND 31
Orthochromatic, moderate dynamic range (25), high contrast, speed 100.

Use and availability

In general format and handling, the new film is identical with our other Polaroid Land films. Pictures made on it will last like any fine prints when coated promptly with the coating supplied with the roll.

With Professional Pan film, you make Polaroid Land pictures that challenge conventional, wet-process pictures at their very best. We urge you to try it.

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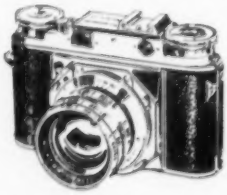

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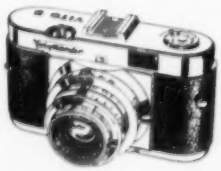

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YOU CAN

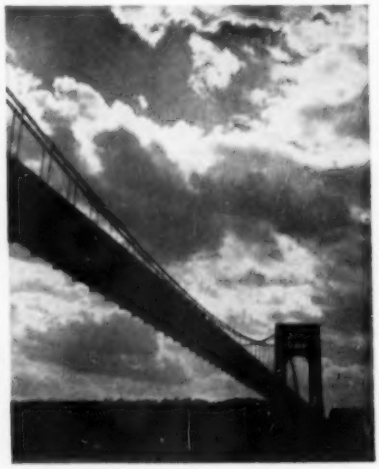
make attractive cloudscapes

By JOSEPH FOLDES

DRAMATIC CLOUD FORMATIONS, shapes, and groupings make beautiful and unusual subjects for photography. Many people are hesitant about attempting to photograph cloudscapes, however, because they have an idea that some special equipment or involved techniques are required.

On the contrary, good cloud pictures are easy to make, and you need no special skill or equipment for them. Photographs similar to those accompanying this article can be made by following carefully the simple steps outlined here.

Foreground figures, dwarfed by majestic cloud formations, are incidental to shot.



Here, bridge span silhouetted against clouds intensifies mood of infinite space.

This type of picture should be made on a day when the sky is a bright, clear blue showing no trace of haze, and dotted generously with fluffy clouds. There must be a number of clouds in view, to be effective—not just one or two.

Generally speaking, the foreground of a cloudscape is more or less incidental, since the main objective is a cloud picture. Usually the foreground objects appear only as silhouettes or semi-silhouettes in the finished picture. In some instances you may find that part of the foreground will enhance the picture and give it added impact, and for these shots you will need to plan your composition accordingly.

Cloudscapes should be made when the sun is in a high position—the best time is between 10 A.M. and 3 P.M. Your camera should be loaded with fast panchromatic film such as Kodak Supper-XX, Ansco Superpan Press, or similar. Place a medium-yellow filter over your camera lens, adjust the lens to infinity, and angle the camera so that about two thirds of the finder or groundglass will be occupied by the cloud-dotted portion of the sky and about one third by the foreground. Now make three exposures, as follows: one for 1/100 second at f/25, one for 1/100 second at f/16, and a third for 1/100 second at f/11. Then wait a few minutes until the clouds have shifted to a different grouping, and make three more exposures, in the same order.

If you wish to vary the foreground, additional shots can now be made from a different location, using the same exposures.

Develop your negatives in one of the standard fine-grain developers such as Microdol, FR Super X-33, or Ansco Finex-L (which was used for negatives of the pictures accompanying this article) for 15 minutes at 68 F, agitating frequently. Then fix negatives in hypo containing hardener, wash them for about 35 minutes in running water (approximately 68 F) and hang them to dry.

If you use a condenser enlarger, make your prints on No. 2 or No. 3 paper—on No. 3 or No. 4 paper if yours is a diffusion enlarger. Make the prints rather dark to bring out full contrast.

Following these instructions should enable you to produce sparkling, attractive cloudscapes.—

If You Use a Box Camera

you can make cloudscapes by using the camera's "instantaneous" shutter setting and following the foregoing instructions as to composition, time of day for making the shots, filter, and developing and printing. There is this exception, however—make only one exposure in each instance, rather than the groups of three exposures mentioned for cameras with f/stops and a number of shutter speeds.

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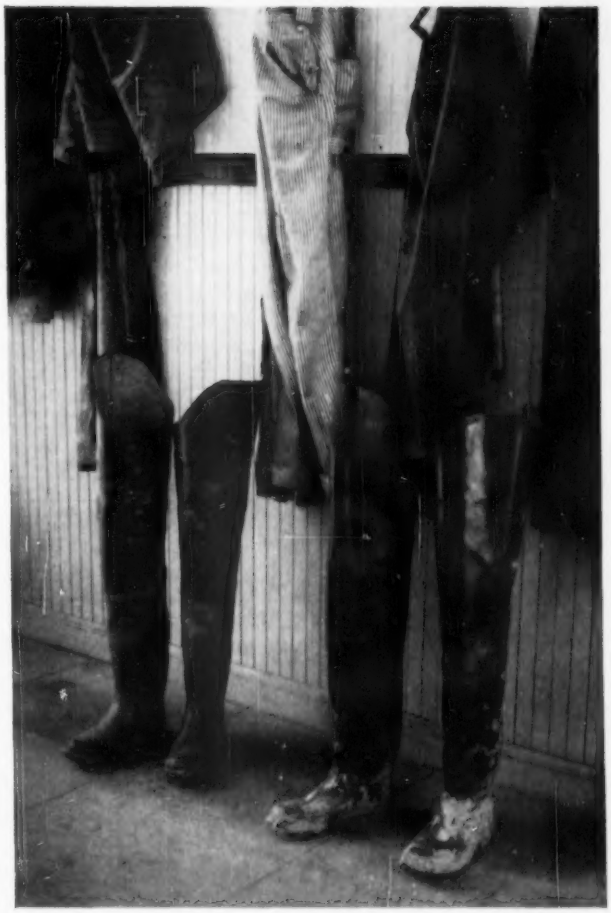

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145. Austria
151. Istanbul, Turkey
160. Athens, Greece
191. Havana, Cuba
202. Canada
208. Australia
211. Haifa, Tel Aviv, Israel
C-4 Story of Pinnochio
C-9 Tarzan
C-10 Fun at the Fair
C-11 Snow White
C-12 3 Caballeros

GROUP D

2. N. Y.'s Hudson River
30. Great Smokey Mts.
32. Notre Dame Univ.
34. Colorado & Estes N'tl Park
35. Kansas City, Mo.
39. Wisconsin Dells
40A. Atlantic City
80. Rome, Italy Landmarks
85. Vatican City, Religious Shrines
87. Inside Vatican City
88. Genoa & Columbus
180. Mexico, Tourist Paradise
181. Touring Mexico

GROUP E—Any set only 10c, if purchased with 4 or more Group C sets.

All slides have subject matter imprinted.

GROUP C—Any 4 sets (40 slides) $2.40—Any 8 sets (80 slides) $4.00

Any two sample sets (20 slides) $1.35 ppd. *Shipping Chges: 4-6 10c, 8-12 30c*

NEW MANSFIELD 2x2 and 2¼x2¼ SLIDEBINDER

$2.59 For the cleanest, the most efficient way for binding slides between cover glasses (2 x 2 or 2¼ x 2¼). It's the new Mansfield Slidebinder. While glass sandwich is held in rubber-covered viselike arrangement, tape can be rolled freely and applied to glasses. *Shpg. Wt. 2 lbs.*

PORTABLE CRYSTAL-BEADED 30x40 TRIPOD SCREEN

LOWEST PRICES EVER

$7.69

- Crystal-beaded Pyroxilyn surface.
- Screen raises and lowers on elevating rod, assuring positive alignment.
- Carrying handle sets automatically for balanced carrying.

Despite higher steel prices, Spiratone continues to offer you the biggest bargains in screens ever! Same quality as before, and as praised by thousands of movie and slidefans. Metal can has beautiful scratch-resistant finish. Sturdy tripod is plated and has protective rubber tips. Thousands of these screens are in use, not only by amateurs, but by clubs, churches, colleges as well.

Screen Size		Ap. Sh. Wt.
30"x40"	7.69	10 lbs.
40"x40"	8.18	11 lbs.
37"x50"	10.84*	14 lbs.
50"x50"	12.87*	15 lbs.
52"x70"	24.95*	15 lbs.

**Screens are shipped by us Express (freight costs collect) within U.S. — other screens P.P. or Express.*

65mm WIDEANGLE for 2¼ x 3¼ $19.89

- 9 speed Compur Rapid shutter, to 1/500, with X synch for flash and strobe.

Another Leitmeyr-made wideangle lens, 65mm f.6.8, covers about 85 degrees on the 2¼x3¼ negative. Its symmetrical construction permits use of either half of the lens as a 130mm telephoto. Lensboard for Graphic (state model) $2.

Shipping Charge 25c

FOR THE DARK ROOM

SAVE 50% ENLARGING LENSES

We are proud to present three unusual values in brand new, coated, color-corrected, anastigmatic lenses, specially constructed to give corner to corner sharpness in enlarging—at prices half and less than those you'd expect to pay for such fine lenses. *Ship. Charge 15c*

2" f.3.8, Leica thread, for 35mm	$7.95
3½" f.4.5, clicksteps, for 2¼x3¼", 2¼x2¼"	9.95
5¼" f.4.5, clicksteps, for 4x5	19.95

ELECTRIC 2-SURFACE DUO-DRIER

MODEL "B"

$7.95 WITH 2 12x17 HEAVY DUTY FERROTYPE PLATES AND STAND

Yes, Spiratone does it again! A complete, ready-to-use, double surface drier with a capacity of 4 8x10 or 36 2½x3½ prints. Singleweight or doubleweight, glossy or dull finish—simply constructed, yet as efficient as units costing several times as much. Works on AC or DC. *Shipping Weight 10 lbs.*

SINGLE SURFACE DRYER with 12x17 ferrotype plate. **$4.89**

Suggestion: Bottle of Ferrotype Polish 35c. Stainless Steel Squeegee Roller 95c

DEVELOPING TANK

ADJ. FOR 35MM, 828, 127, 120, 620, 116, 616. **$1.49**

Simple bayonet lock for different size adjustments. Vents for quick changing of liquids. Agitating rod. Easy loading in darkroom — other operations in daylight. Easily worth double. Tank with spare reel, $2.30 *Shpg. Wt. 2 lbs.*

If bought with tank

4 Stainless Steel Filmclips,	85c
16 oz. Acid-proof funnel,	29c

AUTOTILT PRINT WASHER

All metal 12x15" works in any sink. If bought at same time as any darkroom items of $4.98 and up, only **$1** *Shpg. Wt. 3 lbs.*

HYPO TESTER $1.00

A hydrometer-type device which instantly shows correct fixing time. Helps eliminate stained prints and wasted hypo. *Sh.Ch.10c.*

35mm DBL. $26.95 CONDENSER ENLARGER

- Ctd. f.3.8 lens.
- All metal construction, 24" post, 13x18 base board.
- Fine bellows, easy to grip focusing knob.

Never before such a value. Special lamphousing louvres for cooling, glassless negative carrier, plus a double condensing system for extra brilliance, plus a 2" f.3.8 coated enlarging lens—all is included in our low $26.95 price.

Shpt. Exp., Chgs. Collect

SALE ON BRAND NEW GROUND & POLISHED CONDENSERS

	Sin.	Dbl. Mtd.	Sh. Wt.
2" (35mm)	50c	2.95	½ lb.
3" (2¼" sq.)	79c	.....	1 lb.
4½" (2¼x3¼")	1.98	.....	2 lbs.

ALL METAL 11 x 14 EASEL

INCLUDING FOOTSWITCH

$7.69

- Solid frame guide on 4 sides for proper alignment.
- Spring steel masking bands calibrated in inches and mm.
- Adjustable for all sizes from 1x1" to 12x15".
- White enameled base.

Extra sturdy (net weight 4 lbs.). Plug enlarger cord into footswitch and you are ready to dodge, vignet and fully control your "blow-ups".

Combined Ship. Wt. 6 lbs.

8x10 Enlarging Easel, same construction as above, with footswitch. **$4.98**

ENLARGING TIMER

$6.95

60 sec. range, with second markings. Current shuts off automatically at end of desired time interval. Built-in lock holds knob at desired position, until toggle is released. Adjustable stop for repeat exposures. Manual operation for focusing. Enlarger or printer plugs right into receptacle on cord timer. *Shpg. Chge. 30c.*

11x14 TRAYS 3 for $4.19

Made of heavy acid-proof plastic, with reinforced ribs, handy pouring spout. *Shpg. Wt. 10 lbs.* 8x10 Trays 3 for $2.39. *Shpg. Wt. 4 lbs.*

DECKLE EDGE TRIMMER

$1.00 PPD It's simple to trim any picture, regardless of size and obtain a perfect, straight, deckled edge.

ENLARGER FOCUSING AID

$1.00 A $2.25 value. *Sh. Ch. 15c*

STATIC BRUSH

$2.99 if bought with other equipment

Retractable, emits radiactive rays. To clean lenses, slides negatives!

ALL METAL WALL and TABLE SAFELIGHT $2.95

Comes complete with one filter for enlarging and printing, accepts standard Kodak 3¼ x 4¼" filters (any color—$1.35). Swivels to desired angle with Safelight. Special PANCHROMATIC Safelight Bulb, a $1.00 value! *Shpg. Wt. 2 lbs.*

FREE

PRECISION GERMAN CHEMICAL SCALE $3.95

Every photographer knows the savings resulting from 'mixing his own'. This new import is extremely accurate (no springs), is graduated to 250 grams. Cup is removable, two legs turn for flat, compact storage. All metal construction. *Sh. Wt. 1 lb.*

7 PC. ENLARGER ACCESSORY KIT

REG. $9.98 **$3.98** VALUABLE TO BEGINNERS AND ADVANCED AMATEURS

Set contains sturdy footswitch, funnel, pair of print tongs, bottle film cleaner, Enexpo Enlarging Exposure Meter which shows required time for any paper directly on chart, regardless of enlargement size, and Teststrip maker which helps check accurate exposure and shows where to dodge. *Shipping Weight 4 lbs.*

FREE WITH SET: Argos Print Washer, fits faucet, a $3.00 value

Sale! 40% TO 50% OFF for ARGUS C3 owners

If you own an Argus C3, you can take advantage of the most unusual savings we have ever offered, while supplies last.

40" Cable Release, our usual "special" price $1.50	$ .88
3 ft. Koiled Kord, for use of Argus C3 flash as bounce light	1.98
Spiratone Aux. Wideangle Lens, with case, reg $16.95	8.49
Screw-in Lenscap, reg. $1.00	.39
135mm f:4.5 r-f cpld. ctd. telephoto, reg. $49.94	29.95
35mm f:4.5 r-f cpld. ctd. wideangle	37.95

RF-COUPLED CLOSEUPS WITH YOUR ARGUS C3 $2.98

Proxifocuser couples closeup lens to rangefinder, corrects for parallax, makes focusing to 10" foolproof and rapid. Just place Proxifocuser over view and rangefinder (no installation), place closeup lens into filterholder—and you are ready to take portraits, copy pictures and documents, photograph flowers and small animals. Nr. 1 (to 20"), Nr. 2 (20" to 13"), Nr. 3 (13" to 10").

Each Proxifocuser, regularly $4.95—now complete with Series V closeup lens, 2.98, all three, reg. $14.95—now	$7.98
Series V screw-in filterholder for filters and closeup lenses	$1.25
Set of 3 metal extension tubes for Argus C3, for extreme closeups, with necessary table showing settings	$5.95
Set of all three Proxifocusers, including three closeup lenses, plus three extension tubes, for complete focusing range from 38" to 2"	$11.75

Shipping Charge, each item 10c

Exclusive Spiratone Values!

LEATHER GADGET BAGS

Made by the foremost manufacturers in the field, and exclusively offered by us, through a special purchase, below or close to the usual wholesale prices. These bags are all brand new first class merchandise not to be confused with "seconds" or "closeouts" of inferior leather bags. *Shpg. Wt. of Gadget Bags; 3, 4, 6, 6 and 6 lbs.*

The SP1 and SP2 bring within the reach of every photographer ample size leather gadget bags, with large outside pocket, adjustable shoulder strap, rich saddletan shade, solid brass hardware, and an adjustable inside partition.

SP1 measures 7x9¼x4¼ and is priced at half of list ... **$4.89**

SP2 measures 8½x10½x4" and stands comparison with $15.00 to $20.00 bags. ... **$6.89**

SP5. A topgrain pigskin bag for the advanced amateur or professional, large enough for press cameras (10" x 12" x 5"), or "for taking "both cameras" along. "Wraparound" zipper, flashgun holder, shoulder pad. If you couldn't afford that $30.00 bag, you won't pass up the SP5 at a 54% saving. **$13.95**

SP6. An over-sized genuine cowhide pressbag, 10½" x 14" x 5". largest size available in gadget bags costing normally $40.00 to $50.00. Adjustable strap runs around bottom of bag—no equipment too heavy for this bag! Inside cover is a battercase holder, on sides are one large pocket for meter, two small ones for filters. Adjustable inside partition. Back and bottom are fibreboard lined for extra support. We'd bet you'd only expect to pay that little only for a plastic bag, for the cowhide SP6 is only ... **$16.95**

SP6X-PANDO, the Spiratone miracle bag that G-R-O-W-S, always making room for new equipment. Same size as the SP6 when X-PANDO zipper is closed, you can add a full 4" to the bottom width, if an 80% increase is needed! **$19.95**

FIELD LENS $2.00

A SENSATIONAL SPIRATONE EXCLUSIVE WORTH 2½ TIMES AS MUCH

A flat thin Fresnel ring plate which fits over groundglass in your reflex camera, greatly increasing brilliance of viewing image, making the often almost invisibly dark corner image ten times brighter! No installation—just drop fieldlens onto groundglass. **Postpaid.**

For Rollei, Graflex "22", Ciroflex, Ricohflex, Argoflex, etc.

MAGNIFYING HOOD $2.95 PPD

FOR ALL TWIN LENS REFLEX CAMERAS

Twin magnifier makes possible accurate focusing and composing of entire groundglass image with BOTH EYES and at comfortable distance, while protecting groundglass from glare. Saves eyestrain, helps accuracy, dim light focusing. Instantly removable and collapsible. For Rolleis, Graflex 22, Ricohflex.

COMBINATION OFFER: Magnifying Hood plus Fieldlens ... $4.59

AUX. TELEPHOTO and WIDEANGLE LENSES

for Rollei (except 2.8), Ciroflex, Graflex 22 $16.95 EA or $29.95 for set, in double leather case.

NOW—for the Twin Lens Reflex Fan

SPLIT-IMAGE RANGEFINDER

IN FOCUS — OUT OF FOCUS

- For Rolleiflex, Rolleicord, Ciroflex, Graflex 22.
- Breaks straight lines at an angle until perfect focus is reached.
- Wonderful for poor light focusing.

Rangefinder is built into groundglass which replaces your present groundglass. Complete instructions supplied, simple installation (or your local mechanic can do it at nominal cost). A "must" for the photographer who insists on perfect focus. Reg. $4.95. **$2.49 PPD.**

35MM ADAPTER FOR ALL TWINLENS REFLEX CAMERAS

Without installation, the Minidapter enables you to use 35mm film in your 120 Rolleiflex, Rolleicord, Ciroflex, Graflex 22, Flektar, etc. —yet, you can change back to your regular size any time you wish. Minidapter comes complete with groundglass mask and separate finder, for vertical and horizontal shots, ready to use. **$9.95 PPD**

35MM MINIDAPTER FOR RICOHFLEX ... $4.95

2¼ SQ. GLASS BINDERS AS LOW AS 5¢ Ea. IN LOTS OF 400

At last—an economical type-on mount with 2¼ x 2¼ outside dimensions to fit standard viewers, projectors. Each binder comes complete with two glasses. *Shpg. Wt. 4, 7 and 12 lbs.*

50 for $3.85 — 100 for $6.49 — 400 for $20.00

Sample Package of 12 — $1.15 *postpaid*

Tiny BC REFLEX Fan FLASH $9.95

Fits hood—the first true TWINLENS flashgun! And has more features than any other: BC or reg. batteries; ejector; testlamp; household-type cord and extension flash connection. Fan Reflector has 16 blades for maximum reflecting power. Measures only 3x3x1", permits closing of hood without removal! Complete with cord for ASA and European shutters, pouch and BC battery, postpaid!

P.S. Also fits accessory clip of other cameras, or bracket.

KOILED FLASH CORD $1.98

- **How available for most shutters.** *Sh. Chg. 10c*
- **Patented coiled cord extends to 3 ft., yet coils up without effort to only 7".**

So handy when you want to hold flash away from camera, place electronic flash closer to subject than camera! Available with standard polarized household type plug for Heiland, etc. and prong-type for Kalart to fit Compur, Prontor S, ASA (Kodak), Solenoid, Argus C3, C4, Nikon, Realist, Praktiflex, Boisey and Exakta synchronized terminals.

3 UNIT REFLECTOR OUTFIT $5.49

- **Two aluminum 10" reflectors for #1 or #2 bulbs**
- **One bullet reflector for spot effects**

All three complete with swivel joint, switch, socket, clamp and cord ... at a fraction of their usual cost. *Shipping Weight 5½ lbs.*

SUGGESTION: 2 #2, 1 #1 photoflood bulbs 86c.

SAVE 50% AND MORE ON POLASCREENS

w/o Pola Screen — w/ Pola Screen

The most useful lens accessory made, equally suited for ALL color and b&w films.

Eliminates reflections in scenery, water, show-windows, increases contrast between cloud and sky, the ONLY sky filter usable with Kodachrome, Anscocolor, Ektachrome, Polascreens have double threaded rings to allow use of extra filter or closeup lens, handle for convenient adjustment of maximum polarizing effect. *Sh. Ch. 10c.*

Ser. IV 3.75 Ser. VI 4.75 Ser. V 3.75 Ser. VII 5.75

INSERT RING, holds extra filter with Polascreen, Ser. V or VI ... 39c

Polarizing Filters to fit standard filterholders:

Unmounted: Ser. V $1.49, Ser. VI $1.50

Mounted: Ser. IV $1.75, Ser. V $2.49, Ser. VI $2.98, Ser. VII $3.98

LUMITROL DIMMER HI-LO SWITCH

Allows for comfortable focusing and composing, without straining subject's eye, saves electricity, life of bulbs, a $6.00 value—only $2.49, if bought with $5.49 set (above) or $6.49 set (below).

SYNCH YOUR OLD LEICA FOR FLASH OR STROBE $3.49 PPD.

No installation—just one quick adjustment over release button and you are all set for flash shots at speeds to 1/30th. Tripper accepts standard flashcord—or buy from us with flashgun to fit accessory clip.

Tripper with imported Economy Gun	$6.49
Tripper with Fan-type BC Pocket Flash	$8.95

Sh. Chge. 35c

PHOTOFLOOD STAND PLUS TWO REFLECTORS

- **3-section metal stand extends 6'4".**
- **Sturdy, braced legs with rubber tips.**
- **Stand telescopes compactly to only 2 feet.**
- **Positive locking at any desired height.**

The ideal indoor lighting setup. 22" crossbar, can also be used to hold screen, backgrounds. Two-spun aluminum 10" reflectors (for #1 or #2 photofloods), complete with sockets, switches, 6' cords, ball socket swivel joints, rubber jawed spring clamps. Can be used on cross bar or furniture. *Shipping Weights: Stand 4 lbs., Reflectors 4 lbs.*

$11.00 VALUE $6.49 COMPLETE

SUGGESTION: 2 #2 photoflood bulbs	$ .86
Extra clamp on bullet with bulb (for semi-spot)	1.79

FOR THE 8MM & 16MM MOVIE FAN

The lenses you have read about, the lenses photo editors have raved about now at ultra-large savings up to 50%

Ultraspeed Movie Lenses

for 'available light' movies

Superb coated, color corrected lenses, in focusing mounts, with clickstops—all of them faster than were ever thought possible only a few years back! 8mm lenses in D or B&H mounts, 16mm lenses in C mounts, to fit virtually all Revere, Keystone, Bell & Howell, Bolex, Defur Cameras (exceptions: very small turrets). Made by famous manufacturers, these lenses combine speed, exceptional definition and fine appearance with prices lower than those you'd expect to pay for old-fashioned slow lenses—so why not get the fastest and finest!

For 8mm All 3X telephoto lenses.

1½" f:1.8	$17.95
1½" f:1.5	$23.95
1½" f:1.4 (also av. for Kodak Mag.)	$25.95
1½" f:1.1 World's Fastest 7 elements—wt. 6 oz.	$89.95

Generous Trade in allowance for your old, slow lens.

For 16mm

3" f:1.8 3X telephoto	$27.95
3" f:1.5 3X telephoto	$59.95
1" f:1.5 normal lens	$34.95
15mm f:1.5 43° wide	$59.95

Trading accepted towards f:1.5 lenses.

Warranty All Ultraspeed lenses are guaranteed by us to be equal or better than any other lenses of equal speed, regardless of price.

Shipping Charge 75c per lens

8PC. DELUXE MANSFIELD ACTION EDITOR

SAVE 50%

8MM MODEL Reg. $60.50 **$29.75**

FREE with Deluxe Action Editor: Elegant Reelchest, for 12 reels (specify 200, 300, or 400 ft. cap.) *Shpg. Wt. 18 lbs.*

16MM MODELS, same as 8mm but with 2,000 ft. rewinds, reg. $69.50 **$34.75**

Diecast base comes readily apart for compact storage. Action Viewer has focusing AND framing control, projects brilliant image on 2x3" screen. Easy to thread, scratchproof, scientific ventilation of lamphousing. Complete Outfit: Viewer, 3 piece base, automatic master splicer, cement, pair of 1200 ft. rewinds.

4 pc FAMOUS MAKE 8mm EDITING OUTFIT $10.95

A value like never before!

SAVE $10.55

Outfit contains Projection Editing Viewer, with bulb, pair of rewinds with brakes, all metal splicer, all ready for simple mounting on board or table (not supplied). Can you afford to pass up such a value? *Sh. Wt. 6 lbs.*

CINE TITLER

REG. $5.95 — For 8mm & 16mm — **$3.59**

SAVE 40%

Titles add action, provide continuity for your movies! Yet making titles is so simple with the Cine-Titler! Sturdy metal construction. Auxiliary lens for exact focus. Photograph picture postcards, titles of your own design, you can even shoot animated titles—an instruction booklet accompanies every titler.

If purchased at the same time as Action Viewer, Action or Super-Deluxe Editor

Shipping Weight 4 lbs.

Titler alone ... $4.64

SUPER DELUXE 8mm EDITOR

$14.95

Same viewer, rewinds as above, but with automatic splicer, plus metal base—a $26.00 5 pc. set. *Sh. Wt. 6 lbs.*

SALE IN METAL REELS and CANS

8mm	200 ft. sets 6 for	3.39
	400 ft. sets 5 for	3.94
	300 ft. sets 5 for	2.98

Ship. Wt. per lot 5 lbs.

8mm ACTION VIEWER

$16.89

- **Projects brilliant 2" x 3" pictures in full action on the built-in groundglass screen—not just one frame at a time, but in continuous motion.**

A viewer which makes editing a real pleasure. Operator can adjust focus to his own vision. Easy to thread, scratch-proof, scientific ventilation of lamphousing—really a blessing for movies fans with a limited budget who know they'd have to spend $40.00 and up for a viewer like it! *Sh. Wt. 6 lbs.*

16mm Mod. **$17.95**

8mm PROJECTION EDITING VIEWER

You'll more than ever enjoy editing your movies when you use this neat, all-metal, electric editing viewer. It projects a clear image on the groundglass, makes possible viewing from a comfortable distance. **$6.95**

Shipping Weight 8 lbs.

8MM POCKET TITLER and CLOSEUP DEVICE

$6.95 PPD

FREE WITH POCKET TITLER: 20 Titling Cards, 10 color slides!

Makes any title on the spot, catches those otherwise impossible closeups of flowers, insects without any need to measure or focus, reproduces 35mm Kodachromes on 8mm film! Completely collapsible, with precision ground lens, the Pocket Titler screws directly into 8mm Brownie, B&H 220, 252 cameras, or into Tiffen "C" adapter ($1.15 extra for any camera).

Name make, model, speed lens when ordering.

25 FOOT DOUBLE 8MM COLORFILM $2.49

• PRIVATE BRAND • 100% FRESH • RELIABLE

Available in Daylight (ASA 10) and Tungsten (ASA 16) types. Excellent processing service included. Standard Kodachrome conversion filters may be used! 3 for $6.89. *Shpg. Chge. one 8c, three 10c.*

All prices include excise tax. Postage and insurance MUST be prepaid, even when no shipping weight is stated — overpayment will be credited in full. Everything listed is brand-new (unless otherwise stated) and fully guaranteed against defects. 25% deposit on C.O.D.'s. Items marked 'Free', 'Premium' or 'Bonus' MUST be requested at time of purchase. Foreign orders welcome — slight extra handling charges apply.

SPIRATONE INC.

49 WEST 27th ST., NEW YORK 1, N. Y.

SEND MAIL ORDERS TO: 135-06 NORTHERN BLVD., DEPT. P-11 FLUSHING 54, N. Y.

There are filters and filters and FILTERS, and anyone who has ever clicked a shutter knows that the RIGHT filter can perform miracles with pictures. And herein lies the confusion! How does an amateur determine the right filter?

Many filters are good, some are better . . . and some are best. Tiffen has spent many years in laboratory research to make their fine filter line even better. Out of this research and effort, a new filter line was born—achieving a new level of perfection. This Tiffen "baby" was called TIFFEN "HI-TRANS FILTERS.

DIFFERENT FROM ANY OTHER FILTERS—they embody a number of exclusive features that make them better and easier to use! For example, only Tiffen Hi-Trans Filters are bound in "COLORIM"* THE RIM THAT SHOWS THE COLOR OF THE FILTER AT A GLANCE! This tempered Dural band protects against chipping, shock and breakage, and is actually colored the same as the filter.

MADE LIKE THE FINEST LENSES! Ground and polished to optical flatness and plano-parallelism. More than 1½ hours of final polishing goes into each filter—exceeding that of many lenses!

THERMO-BONDED! Not even a tug-o-war can separate it! Tiffen's exclusive filter thermo-bonding process is similar to the methods used by the world's leading lens makers—for permanence, rigidity, strength!

COLOR-TRUE! Only Thermo-bonding permits accurate, consistent color control. Carefully measured quantities of dye are suspended, in the laboratory, in Tiffen's bonding agent, thereby making "dye-lot" filters obsolete! Spectrophotometer tests assure correct color transmission.

T-COATED! Unlike many so-called "coatings," Tiffen Hi-Trans Filters are genuinely T-coated—a tough protective finish resulting in greater light transmission.

Available in the following series: #C, #4, #4.5, #5.5, #6, #7, #8 and #9.
GUARANTEED FOR LIFE!

*Pat. Pend.

Write for Complete Catalog

Tiffen MARKETING CO.
Roslyn Heights, L. I., N. Y.

photo tips— short cuts to better pictures

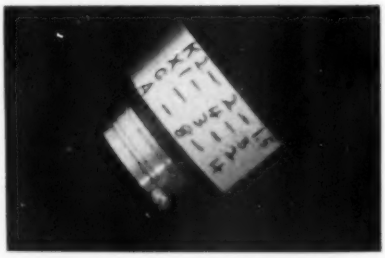
Manipulate Negative Holders Easily

At times, it is difficult to separate some types of glassless negative holders because of the fact that their smooth edges fit together in close alignment. The difficulty can be remedied by gluing a narrow piece of thin, stiff cardboard along the top side of the upper plate of the holder, allowing the cardboard to extend about ¼ inch over the edge. This will greatly facilitate raising the top plate when changing negatives.—*Robert W. Breland, Colorado Springs, Colorado.*

Protect Cords and Plugs

If appliance cords and plugs are allowed to dangle precariously or trail along the floor, there is risk of their being stepped on or otherwise damaged. A short, split piece of lawn hose will help to protect and preserve these items when not in immediate use, as shown in the accompanying illustration which depicts the connecting cord of a spotlamp clipped to a tripod supporting stand by this means. This protective "clip" can be detached in an instant.—*Ken Murray, Colon, Mich.*

Handy Reference for Filter Data



Filter-factor data of the various filters you use can be kept conveniently available by the following means: On a piece of adhesive tape, write the numbers and factors of the filters you use most frequently. Then affix the tape to your lens shade, as shown here. On one side of the shade, data on filters used for black-and-white film can be indicated, and the other side can be used for similar informational data on color filters.—*Andrew J. Clark, Pacoima, Calif.*

Holder for Darkroom Towels

Have you ever reached for your darkroom towel in a hurry, only to find that it just wasn't there? Instead of having to fumble around in the dark trying to locate it, you can keep a darkroom towel right at hand by placing it in a clothespin bag, of the type that has a hook to hold it on a clothesline. Then, with bag attached to belt or waistband, your darkroom towel is immediately available when needed. Bag illustrated is about 7x10 inches.—*H. Leeper, Canton, Ohio.*

Inexpensive Measuring Device

When mixing hypo in gallon quantities, if your darkroom scale doesn't handle weights up to two pounds, a milk carton will make an inexpensive measure that can be reused many times. Weigh the hypo powder in small quantities until the two-pound volume is reached, then pour powder into the carton (which should be thoroughly clean and dry), shake carton until powder settles, mark level of powder on outside, and cut carton at that point.—*L. Hochman, Sherman Oaks, Calif.*

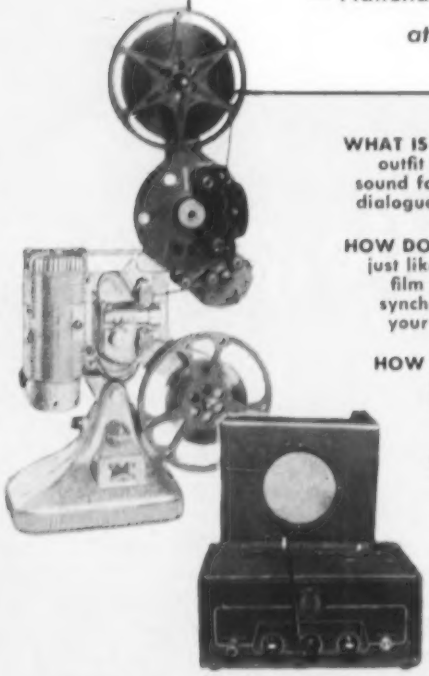
Why not send in your ideas for better picture-making and darkroom aids? We will pay $10 for each photographically illustrated Tip accepted—$5 if not illustrated. Material must be original and not previously published.

ROLLEIFLEX
The camera of cameras
new Automatic
Rolleiflex 2.8 D
...Incorporating the new Synchro-Compur shutter with cross-coupled light value scale and click stops for both speed and aperture...a convenient de-coupling button to permit separate adjustment of speed and aperture... auto-locking M-X synchro lever, with self-timer included...auto-locking flash cord and shutter release guard...and other distinctive Rollei features. Available with the famous new construction Schneider Xenotar f:2.8 lens, or the Zeiss Planar. Truly, the camera of cameras for the professional and critical amateur...the camera for you! Available now at local dealers. See it today.
Equally famous in their own right, both the automatic f:3.5 Rolleiflex, and the Rolleicord, also are equipped with cross-coupled LVS shutters.
Burleigh Brooks, Inc. 10 West 46th Street, New York 36, N. Y.
West, Alaska & Hawaii: PONDER & BEST, INC., 814 North Cole Ave., Hollywood 38, California

NOW YOUR HOME MOVIES CAN TALK!

YOU CAN ADD SOUND TO YOUR 8mm or 16mm FILMS

PENN brings you this professional CINESONE Sound Outfit — *Nationally advertised* at $199.75— for only **$99.50** for 8mm or 16mm (Specify)



WHAT IS IT? The new CINESONE is a complete magnetic sound recording outfit that converts virtually every 8mm or 16mm silent projector to sound for both recording and for projection. You can actually add music, dialogue and sound effects to any silent movie—old or new.

HOW DOES IT WORK? The complete recording head snaps onto your projector just like any 300 foot or larger film reel. You record on any soundstriped film as you project the film. You can then play back the perfectly synchronized sound and picture immediately. Any camera store can have your film soundstriped quickly and inexpensively (2½ to 3½c a foot).

HOW GOOD IS IT? Your friends and family will be amazed at the truly professional quality sound films you can make with the new CINESONE full fidelity recording outfit. We believe that it is the finest unit of its type on the market.

PENN makes it possible for you to own this amazing sound outfit for $100 less than the manufacturer's list price. Order today. PENN's "Famous for Fairness" service guarantee is your assurance of complete satisfaction.

CINESONE Model A (recording head adapter only) with lead wires for attaching to Revere, TDC or Masco tape recorders . . . list $99.75 . . . PENN PRICE $49.50

Illustrated circular on request. Either CINESONE outfit may be purchased with time payments. Inquiries invited. If you don't own a projector, write for Penn's combination price for the CINESONE outfit plus any projector of your choice.

FOR 8mm or 16mm MOVIE PROJECTORS taking 300 foot and larger film reels.

Save $60.00! Brand New!

The year's outstanding camera value!

Automatic FLEXARET IIIa

Twin lens focusing reflex

Advanced 1956 Model!

- 4 element f3.5 ctd. anastigmat lens
- New German Prontor SVS (MXV) full synch. shutter
- Speeds from 1 sec. to 1/300 sec. & B
- Automatic film transport crank and frame counter
- Built-in simplified self-timer, permits delayed action with synchro flash.

Reg. $109.50 SPECIAL $49.50

Automatic Flexaret with SV (MX) Shutter $44.50
Eveready leather case for either model . . . $6.50

Save $63.55! Brand New! Registered!

FIRST AT PENN!

35mm M-X SINGLE LENS REFLEX

Tessar f2.8 ctd. pre-set lens

- Two separate P.C. sockets for full synch. (flash & electronic flash)
- Accepts any flash unit with standard Prontor Cord
- Reflex Finder
- Focal plane shutter
- Automatic shutter cocking and film transport

Reg. $139.50 SPECIAL $75.95

New-type metal rim leather case . . . $8.95
100mm f4.5 ctd. telephoto lens, Reg. $34.95 . . . $17.95
Eye level prism finder for above . . . $13.50

PENN CAMERA

"FAMOUS FOR FAIRNESS AND VALUE"
126 West 32nd Street, Dept. P-1155
New York 1, N. Y. • LO 4-2230

All equipment carries a 15 DAY MONEY-BACK TRIAL and Penn's 1-year Service Guarantee.

We invite your inquiries on any Photographic equipment.

NO Gimmicks AT PENN

PENN only advertises equipment it can deliver at prices shown.

Save $70.50! Brand New!

AIRES AUTOMAT

with double bayonet lens mount to take Rollei accessories

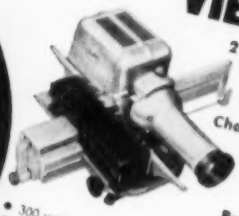
- f3.5 ctd. lens
- 1 to 1/500 sec. and B
- Automatic film stop and exposure counter
- Rapid lever wind advances film & cocks shutter
- Click shutter and diaphragm settings
- Body release
- FX Synch.
- Sports Finder

Reg. $160 SPECIAL . . . $89.50 with leather eveready case

Save $27.50! Brand New!

VIEWLEX

2 x 2 Automatic Slide Projector with Change-O-Matic



- 300 watt
- Motor fan cooled
- 5" Luxtar ctd. lens
- Takes all 2 x 2 slides in any type mount or binder, intermixed.

Reg. $67

SPECIAL $39.50 including slide tray

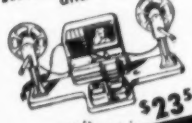
Deluxe comb. case when ordered with above projector . . . . . $ 9.50

Additional trays . . . . . 3 for 2.40

FREE! 2 sets of metal reels & cans with

MAMSFIELD ACTION EDITOR

and Table Top Movie Projector



- Automatic splicer
- 1200 ft. rewinds
- Brand new, latest model
- All metal die cast viewer
- 2¼ x 3¼ screen with glass prism shutter

8mm (200') . . . . $23.50 16mm (400') $24.95

Make your own

CHRISTMAS GREETING CARDS

with your favorite negative

24 Different Masks available

SPECIAL . . . . . 89¢ ea.

Write for FREE circular illustrating designs available

GREETING CARD PAPER

(4¼ x 5½ — Dbl. wgt. only)

	25	100	500
AZO (for contact)	81¢	$2.28	$ 9.32
KODABROMIDE (enlarg.)	90¢	$2.60	$10.69

Spec. 1, 2, or 3 — Straight or Deckle

ENVELOPES FOR GREETING CARDS

25 . . . 30¢ 100 . . . 69¢

500 . . . $2.39 1000 . . . $3.65

Brand New! Precision Built!

PICON LENSES

for 35mm single-lens reflex cameras

- All lenses coated
- German import
- Pre-set diaphragms
- Latest models

	Reg.	SPEC.
*40mm f4.5	$50.00	$24.95
85mm f2.0	124.50	82.95
100mm f2.8	69.95	46.65
135mm f3.5	74.95	49.95
#180mm f5.5	79.95	53.30
250mm f5.5	124.50	82.95

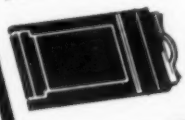
*Not pre-set #Available for Hasselblad at $7.50 extra

Brand New!

CUT FILM HOLDER

Standard Double

Fits all Graphics and other cameras with standard press-type spring backs.



	Reg.	SPEC.
2¼ x 3¼	$3.85	$2.79
3¼ x 4¼	3.99	2.89
4 x 5	$4.12	$2.99
5 x 7	4.71	3.39

Minimum Order—3 holders

Fresh FILM, Factory Sealed

KODACHROME

1956 Date • Kodak Processing Included

	Reg.	SPEC.
8mm roll (dble.)	$3.75	$2.92
8mm mag. (dble.)	4.65	3.62
16mm x 100' roll	10.40	8.12
16mm mag.	6.95	5.41
35mm x 20 exp.	$3.25	2.55
35mm x 36 exp.	4.95	3.87
35mm Stereo, 20 exp.	4.65	3.64
#828	1.85	1.45
Bolex 8mm x 100' roll	13.60	10.70

Sold only in lots of 3 or more

Prices are per each roll or mag.

Save $110.00! Brand New! Registered!

PENTACON

with fully automatic f2 ctd. Westagen lens

- Focal plane shutter
- Speeds from 1 to 1/1000 sec.
- Automatic shutter cocking
- Built in full synch.
- Self-timer
- Prismatic eye-level finder

Reg. $259.50 SPECIAL $149.50

Eveready leather case $9.75

100mm f4.5 ctd. telephoto lens, Reg. $34.95 . . . . . $17.95

Save $160.50! Brand New!

KINE EXAKTA VX

Carl Zeiss f2 Biotar Preset ctd. lens

Prismatic eye-level rangefinder.

- Cpld. film transport, automatic shutter cocking & frame counter
- Full Synch.
- Import Certificate & Registration

Reg. $400 Disc. Model SPECIAL . . $239.50

with waist-level reflex finder $199.50 Eveready leather case 9.50

High Speed ASA 32

EKTACHROME

1956 Date • No Processing

	Reg.	SPEC.
*35mm x 20 exp.	$1.85	$1.45
35mm x 100 ft.	40.00	31.25
*#828 Bantam	$1.00	.79
*120 or 620	1.25	.98

*Sold in lots of 6 or more

Prices are per roll—Spec. Dalite or Tung

Save $11.00! Brand New!

Topflight FOLD-A-LITE

with metal case and four #375 floods

- Fingertip control
- Pressed steel
- Attaches to any movie or still camera
- Can be hand held or attached on tripod.
- Choice of light combinations
- Folds to 14½" length

Reg. $25.95 SPECIAL . . . $14.95

Save $100.00! Brand New! Registered!

ConSol

f2 Preset ctd. 58mm Jena lens

- Focal plane shutter
- Speeds from 1 to 1/1000 sec.
- Self timer
- Built-in full synch.
- Automatic shutter cocking
- Prismatic eye-level finder

Reg. $249.50 SPEC $149.50

Eveready leather case $9.75

100mm f4.5 ctd. telephoto lens, Reg. $34.95 . . . . . $17.95

Save $50.50! Brand New!

RANGE FINDER PRISM for Kine Exakta

Eye level view-finder and automatic split image range-finder with case and extra ground glass.

Reg. $88.00 SPECIAL $37.50

Rangefinder glass alone $12.75

All items subject to prior sale. Please estimate and add shipping and insurance costs. We'll refund every penny not used. For C.O.D. please send 10% deposit with order. Prices subject to change without notice.

Save $150.00! Brand New!

ROBOT Star

Uses standard B & W or color 35mm film cartridges!

with Schneider Xenon f1.9 ctd. lens

- Amazing rapid sequence camera for action shots!
- Takes 5 exposures per sec.
- 24 exposures on one setting
- 55 exposures on 36 exp. film
- Motorized
- Automatically moves film and resets shutter

Reg. $249.50

SPECIAL $99.50

Eveready leather case $9.95

FREE! $5.95 vinyl case with

DAVIDSON Star D COMET

with Swing-Over Head

- Instant framing in any horizontal or vertical angle
- Multi-cam head
- Double extension
- Opens to 72", folds to 27"
- Dual Controls
- Synchrolock lifting mechanism
- Brand New, Latest Model

Introductory price $22.50

FREE—Send for PENN's new, complete catalog of photographic equipment.

PENN CAMERA

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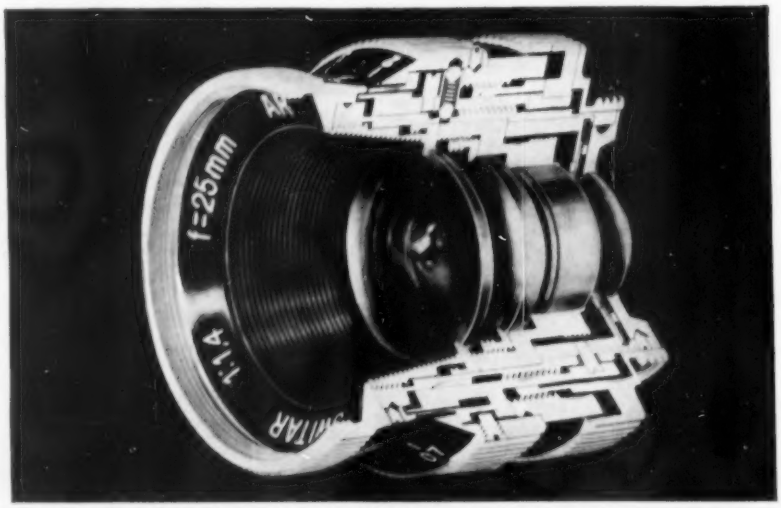
MAIL ORDERS PROMPTLY FILLED

Why you'll get better movies with Kern-Paillard lenses

New free full-color booklet gives detailed story on movie lenses, their use, types, characteristics, and other details for beginners and serious movie makers.

You can now get your copy of an outstanding new booklet free. Printed in full color in Europe by Kern-Paillard, this 24-page booklet has amazingly complete data on lenses—gives you fascinating information you'll need for better movies.

Send for this free booklet—use coupon at bottom of opposite page. You'll see clear, graphic illustrations such as that at the right above, and the text is easily read and understood. You'll get an intriguing explanation of Kern-Paillard's exclusive design and special features.



Cutaway view shows the intricate details of Kern-Paillard's exclusive lens mountings.

WHY ONLY KERN-PAILLARD LENS BARRELS HAVE THIS EXCLUSIVE DESIGN

Lens mountings must be strong and easy to manipulate. Yet they must also be precise to fantastically small measurements, delicate to avoid weight and bulk, and they are necessarily complex to perform their function.

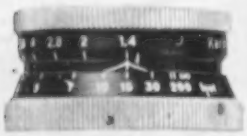
For generations the Swiss have had a justified reputation for making fine mechanisms of all sorts, of which watches are the most usual example. It is, therefore, not surprising that Kern has developed an exclusive lens barrel design engineered to perfection in the best tradition of Swiss craftsmanship.

The exclusive lens mountings for all Kern-Paillard movie lenses (see cutaway view above) are unusually strong to withstand accidental battering. They are accurate to less than 0.0001" in all portions, and are manipulated easily and quickly by the movie-maker without binding or holding. All Kern lenses are now made in Standard "C" or "D" mounts to fit all standard cameras.

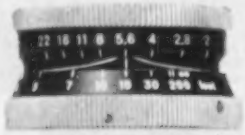
HOW KERN-PAILLARD GIVES EXTRA OPTICAL QUALITY

Kern is the leading optical company of Switzerland, making a full line of optical instruments including microscopes, field glasses, telescopes, transits, and others. Teaming up with Paillard, S.A., makers of the outstanding Bolex movie cameras and equipment, they have produced the line of Kern-Paillard lenses including the unexcelled Switar lenses, the superior Yvar lenses, and the more economical Pizar lenses.

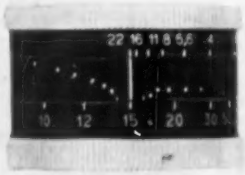
Thanks to the skill, design knowledge, and the able Swiss craftsmanship of Kern and Paillard, Switar lenses are generally agreed to be unsurpassed by any made anywhere in the world. Most technically proficient movie-makers are agreed on the



Compass depth-of-field indicator.



Same lens with aperture closed.



Visifocus depth-of-field indicator.

Same lens with aperture opened.

optical qualities of Kern lenses. By all objective tests, the Switar lenses surpass most lenses and equal the performance of the finest.

HOW AR COATING INCREASES LENS SPEEDS

AR (for Anti-Reflection) coating on all Kern-Paillard movie lenses ensures that maximum light will be transmitted to the film without flash, glare, or hot spots. Uncoated lenses cause internal bouncing of light rays (see diagram) which produce halations, glare or other aberrations.

AR coating increases effective lens speeds so that an F:1.4 AR coated lens is equivalent to an uncoated F:1.2 lens. The coating will not affect color values nor will it give any distortion. Kern lenses retain their corner-to-corner sharpness under the most adverse conditions.

TWO EXCLUSIVE DEVICES GIVE DEPTH-OF-FIELD AT A GLANCE

Kern-Paillard lenses use two depth-of-field indicators, both giving an accurate reading at a moment's glance.

"Visifocus" depth-of-field indication is shown at left and provides a series of flashing orange dots which pop up to define accurately the range over which the lens is in focus. As the barrel is rotated to change the aperture, the "Visifocus" dots appear or disappear to give instant depth-of-field reading at all times.

"Compass" depth-of-field indication is shown at left. It, too, gives instant reading regardless of the opening. Here a white line appears against the rich black finish. The line shows at all times what the range of focus is. As the aperture is changed, the line automatically widens or retracts to cover the precise field which will be in focus.

WHAT OTHERS SAY

Paillard Products, Inc.
New York, New York

Dear Sirs:

Since I do all my movie work exclusively with a Bolex, I thought you might be interested in part of a letter from a TV newsreel organization:

Dear Jerry – Everyone in our production department was quite impressed with the excellence of your quality on that dog hunting story. It really looked as good as 35 mm negative and that is extremely rare for 16 mm . . .

I might add that I think the cleanness of the job was due to the Bolex and the Switar lenses that were used.

Jerry Taylor
(Free-Lance Photographer)
Newport, Rhode Island

Paillard Products, Inc.
New York, New York

Gentlemen:

On a recent aerial assignment I used the Bolex Supreme with Switar lenses. Not only did I have no trouble due to heat and cold (from about 78° on the ground to about 5° aloft), but the photographs were sharper, clearer, and had finer definition than those taken with my previous equipment.

The Switar lenses are all you said and more. Frankly, they've given me better tests and better results than others which cost more.

Robert L. Purdy
(Associated Photographers)
Pittsburgh, Penna.

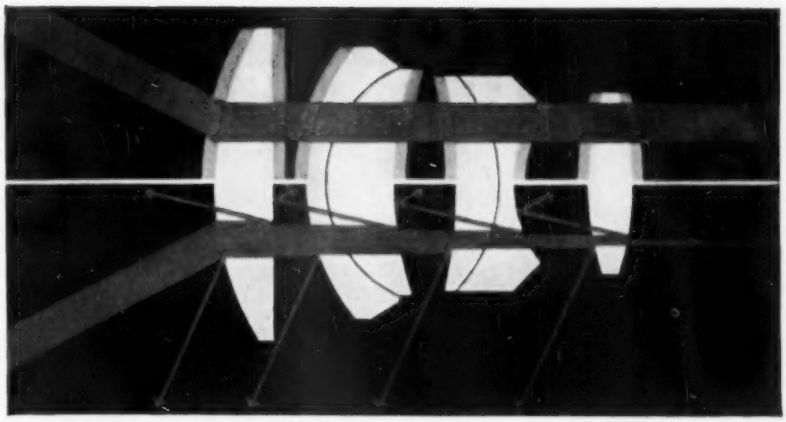


Diagram from Kern-Paillard booklet (see below) shows the path of light rays through a lens with AR (above), an uncoated lens (below).

ROSTER OF SUPERB KERN-PAILLARD MOVIE LENSES

Name and Focal Distance	Aperture from	to	Focusing from	to	Relative Magnifying Power	Number of Optical Elements	Mount	Angle of Field	Depth-of-Field Indicator	Price Including Fed. Ex. Tax
8 MM MOVIE CAMERA LENSES										
Switar 5.5 mm	F1.8	F22	5"	∞	0.4 (WA)	8	D	48°	Standard	$119.50
Pizar 5.5 mm	F2.0	F22	fixed		0.4 (WA)	8	D	48°	†	79.50
Switar 12.5 mm	F1.5	F22	9"	∞	1.0	6	D**	22°	Compass	114.50
Yvar 13 mm	F1.9	F22	9"	∞	1.0	3	D**	22°	Visifocus	74.50
Yvar 12.5 mm	F2.5	F22	9"	∞	1.0	3	D	22°		44.50
Yvar 12.5 mm	F2.5	F22	fixed		1.0	3	D	20°	†	34.50
Yvar 25 mm	F2.5	F22	18"	∞	2.0	3	D	11°	Visifocus	56.00
Yvar 36 mm	F2.8	F22	21"	∞	3.0	3	D	8°	Visifocus	62.50
Yvar Filtin††	F2.8	F22	18"	∞	1.0	3	D**	22°	Standard	69.50
16 MM MOVIE CAMERA LENSES										
Switar 16 mm	F1.8	F22	8"	∞	0.6 (WA)	6	C	36°	Visifocus	99.50
Yvar 16 mm	F2.8	F22	12"	∞	0.6 (WA)	3	C*	36°	Visifocus	69.50
Switar 25 mm	F1.4	F22	18"	∞	1.0	6	C	24°	Compass	168.00
Switar 25 mm	F1.5	F22	18"	∞	1.0	6	C	24°	Visifocus	115.00
Pizar 26 mm	F1.9	F22	18"	∞	1.0	5	C*	24°	Visifocus	89.50
Switar 50 mm	F1.4	F22	3'	∞	2.0	6	C	12°	Visifocus	169.50
Yvar 75 mm	F2.8	F22	5'	∞	3.0	3	C	8°	Visifocus	94.50
Yvar 100 mm	F3.3	F22	8'	∞	4.0	3	C	6°	Visifocus	106.00
Yvar 150 mm	F4.0	F32	13'	∞	6.0	3	C	4°	Visifocus	145.75

* Fits all C mount cameras except Pathe, Revere, and Keystone turret models.
**Fits all D mount cameras except Dejur, Revere, and Keystone turret models.
†Close range indicator. ††12.5 mm focal distance. Built-in conversion, skylight, yellow and red filters.

FREE BOOKLET MAKES LENS CHOICES EASY

Four-color booklet has 24 pages of useful information including: definitions of lens terms; explanation of testing of lenses; color correction; anti-reflection; lens manufacture; depth-of-field; aperture explanation; full details on 15 different lenses with illustrations; lens mounts; many other details. Send for it at once; quantity limited. Use coupon below.

Your Bolex dealer can show you examples of Kern-Paillard lenses. (No other dealers handle them.) All come in individual leather plush-lined cases. The rich black and highly brushed aluminum is not only handsome, it provides for faster reading of all pertinent figures which are deeply etched and in gleaming white.

For better lenses and for those needed accessory lenses, see your Bolex Franchised Dealer. Consult your Classified Directory.

BOLEX

A PAILLARD PRODUCT • Fine Swiss mechanisms since 1814

Paillard Products, Inc., 100 Sixth Ave., New York 13, N. Y.

Paillard Products, Inc.
Dept. P-11
100 Sixth Avenue, New York 13, N. Y.

Please rush me my copy of your informative, four-color booklet on movie camera lenses.

NAME .....

STREET & NUMBER .....

CITY ..... ZONE ..... STATE .....

candid shots by the Editors

Portraits, Self- and Otherwise

In autumn, a wise photographer's imagination turns (at least part of the time) to indoor projects like portraiture. With this in mind, we bring you this month a five-part feature on the subject (pages 90-103). Two of the parts concern self-portraiture; one shows how to go about it, the other is a wacky spread of examples of the art by a clever professional. William E. Henning, who lives in Cedar Rapids, Iowa, prepared the how-to story, and the illustrations of techniques and gadgets that help you take your own picture. He also furnished us with a number of pictures of himself, made with these techniques and gadgets, but we didn't use any of them. Now, it's a little unfair to a man who writes about self-portraiture if we don't even show what he looks like. So here is a shot he made of himself, neatly posed in a square picture frame. With Alfred Gescheidt, the problem was a bit different. Every picture we use with his story is a picture of Gescheidt, but none of them shows what he really looks like, unmutilated and undistorted. He's a pretty handsome guy, so in a spirit of fairness we bring you a "straight" Gescheidt. This should be a good example of a self-portrait, with the camera aimed straight at a mirror. But it isn't; it's just a plain portrait, by Al Porte.

Henning

Gescheidt

Next Month, Contest Winners

Thirty days from now, give or take a couple, you will be reading the names of winners in the 1955 International Picture Contest, and looking at the shots that won top money in color and black-and-white. If you entered, this will be a matter of burning interest to you, and we know you won't miss the December issue. If you didn't enter, let us remind you that the once-a-year Contest Issue is an oversize picture book, in addition to being packed with POPULAR PHOTOGRAPHY'S usual quota of instructive and helpful articles. Unless you're a subscriber, make a big note to watch for the December issue on your newsstand. Hope your name is in it!

If You Don't Have Fish . . .

Maybe after you've read the beautifully illustrated color story, *Your Aquarium—An Underwater Color Studio*, you'll be excited about the idea of photographing tropical fish. If you have an aquarium already, you're set—and good luck to you. If you don't, you may be able to take pictures in a store that sells them. Our own pictures were made in the showrooms of the Aquarium Stock Co. in New York City; that company invites photographers to visit and shoot any of the 200 tank setups on its main floor. The offer extends to its branch store in Los Angeles, in case you live on the West Coast. If you're somewhere in between, try to make arrangements with a similar store near you. It might be a selling point if you show Arthur Bleich's pictures to the man in the shop.

New Contest

Just when it's almost time to announce prize-winners in our International Picture Contest, we bring you news of another competition. This one is aimed at young people: the POPULAR PHOTOGRAPHY High School Photo Contest. It's for black-and-white prints only, and the top award is a $1,000 U. S. Savings Bond. There are 107 other prizes, including merchandise certificates and subscriptions to the greatest photographic magazine in the world. If you're a high-school student anywhere in the United States or Canada, you can enter, but you don't have all the time in the world. Closing date is the end of next January. Detailed information will be found on page 139 of this issue. A bond would be a fine nest egg for your college fund!

What They're Doing and Saying . . .

Lightning bugs are due to have a new usefulness within a couple of generations, if a prediction by Eastman Kodak's general manager is fulfilled. Donald McMaster told a recent gathering that in 75 years, a firefly's light may be enough to register images on film. Among other interesting forecasts: faster and easier processing for color and black-and-white . . . wide use of X-ray movies in medicines . . . color films' speeds as fast as black-and-white.

•

New York City $35-million Coliseum is due to open on April 28, and the event will have special interest to photographers. One of the three expositions which will open the building (yes, all three at once) is the 1956 National Photo Show, which in former years has pretty well filled a big armory. That gives some idea of the Coliseum's size and capacity. Sharing opening-week honors with the Photo Show will be the International Philately Exhibition and the International Motor Sports Show.

•

Ever since somebody once said it was silly to send refrigerators to Eskimos, people have been trying to do it. This time it's the U. S. Navy, and the refrigerators are not actually for the natives but for the Navy's South Polar expedition, "Operation Deep Freeze." Photographic angle? They'll be used to keep color film and processing chemicals at ideal temperatures. Lt. Comdr. C. C. Shirley of the Navy Bureau of Aeronautics will go along as the expedition's photographic officer—and custodian of its film coolers.

•

To raise money for recreation and rehabilitation of hospitalized veterans, Volunteer Service Photographers will present an evening of "Photo-Magic" by Irving Desfor, photo art director for Associated Press Newsfeatures and AP camera columnist. Desfor is celebrated for his "act," a skillful blend of photography and prestidigitation. The show will be at the Barbizon Plaza Hotel, New York City, on November 18. If you're in the area, drop in to see a good show and help a very good cause.

Photograph by David Sutton

Thousands are buying the only camera with

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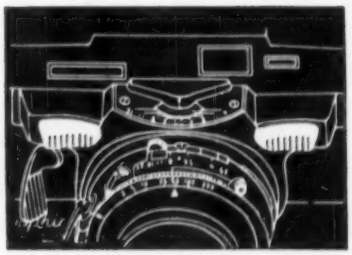

WHEN the NEW Graphic 35 was introduced a few months ago, newspaper and magazine editors across the country acclaimed *Push-Button Focusing.* Camera dealers recommended it to their customers . . . neighbors recommended it to neighbors . . . and friends recommended it to friends. Now, a survey of recent Graphic 35 purchasers shows that 75.2% bought because of easy-to-use *Push-Button Focusing.* Try it at your dealer's store . . . you'll see why the Graphic 35 has won the acclaim of the world's 35mm. fans.

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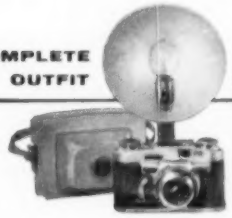

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Isolation

is one effective way to add impact to your pictures. Here are six methods for you to try

BEGINNERS often are exhorted to move in close to the subject, make full use of the entire negative area, and eliminate nonessential details. By and large this is sound advice, but like almost every rule in photography it sometimes can be violated with profit. In all the pictures reproduced on these eight pages the subject image is small and the surrounding space is large, thus isolating and emphasizing the subject.

As a visual device, isolation is a useful way to vary the pace of your pictures and achieve greater impact. It should only be used, however, with appropriate subject matter and to reinforce a desired mood. Most isolation pictures strike a minor chord, by symbolizing the loneliness of man against the world or man psychologically isolated from other human beings. However, it can help create other moods, too: the serenity of sky, sea, or river; the wonder and delight felt by an exploring child; the exhilaration of speed and motion. On these pages are six techniques which any camera user can easily adapt to his own uses.—▶

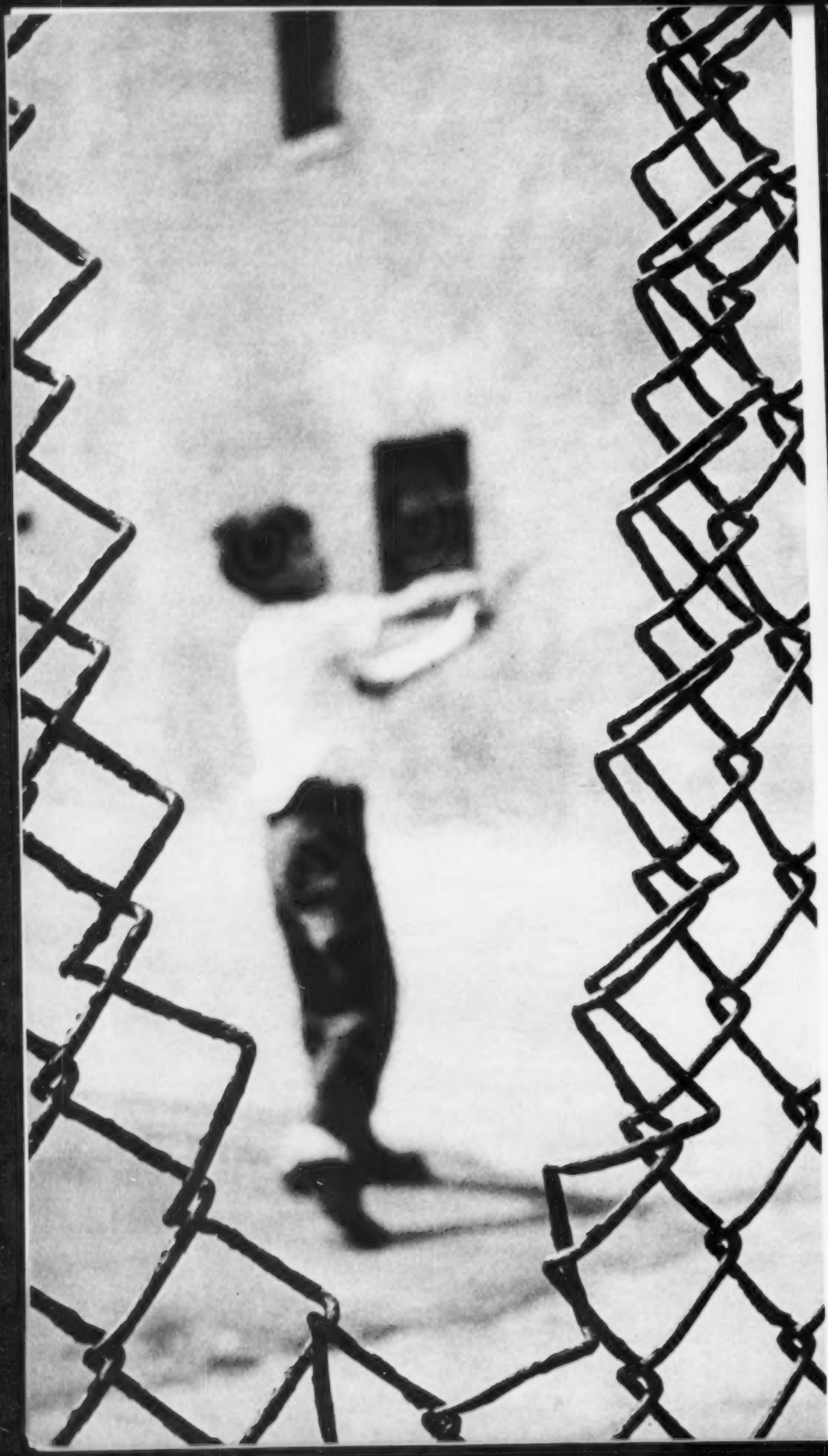
1 Isolation by low camera angle

Perhaps the simplest way to isolate a single figure or almost any other subject is to shoot from a lower-than-usual camera angle and utilize the sky as a background. Above, Armin Alfermann of Germany recorded lone man on railroad tracks with an Ikoflex.

→

Low angle is equally effective in Hans Namuth's sunny, space-filled picture of his daughter, Tessa, at the beach. Namuth used a Primar Reflex and employed a medium-yellow filter to emphasize the clouds against the sky background. Exposure: 1/100 sec at f/11.

continued

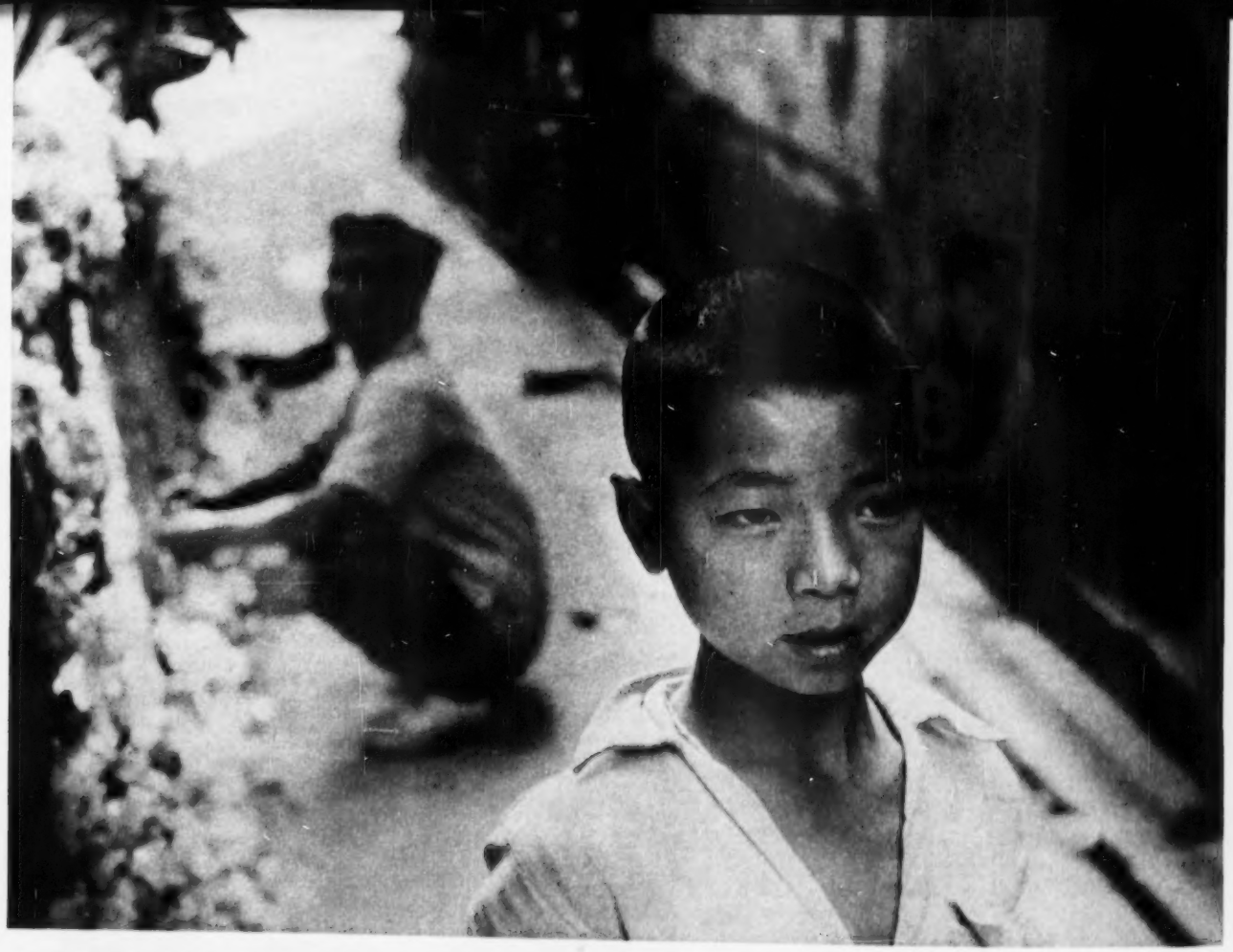


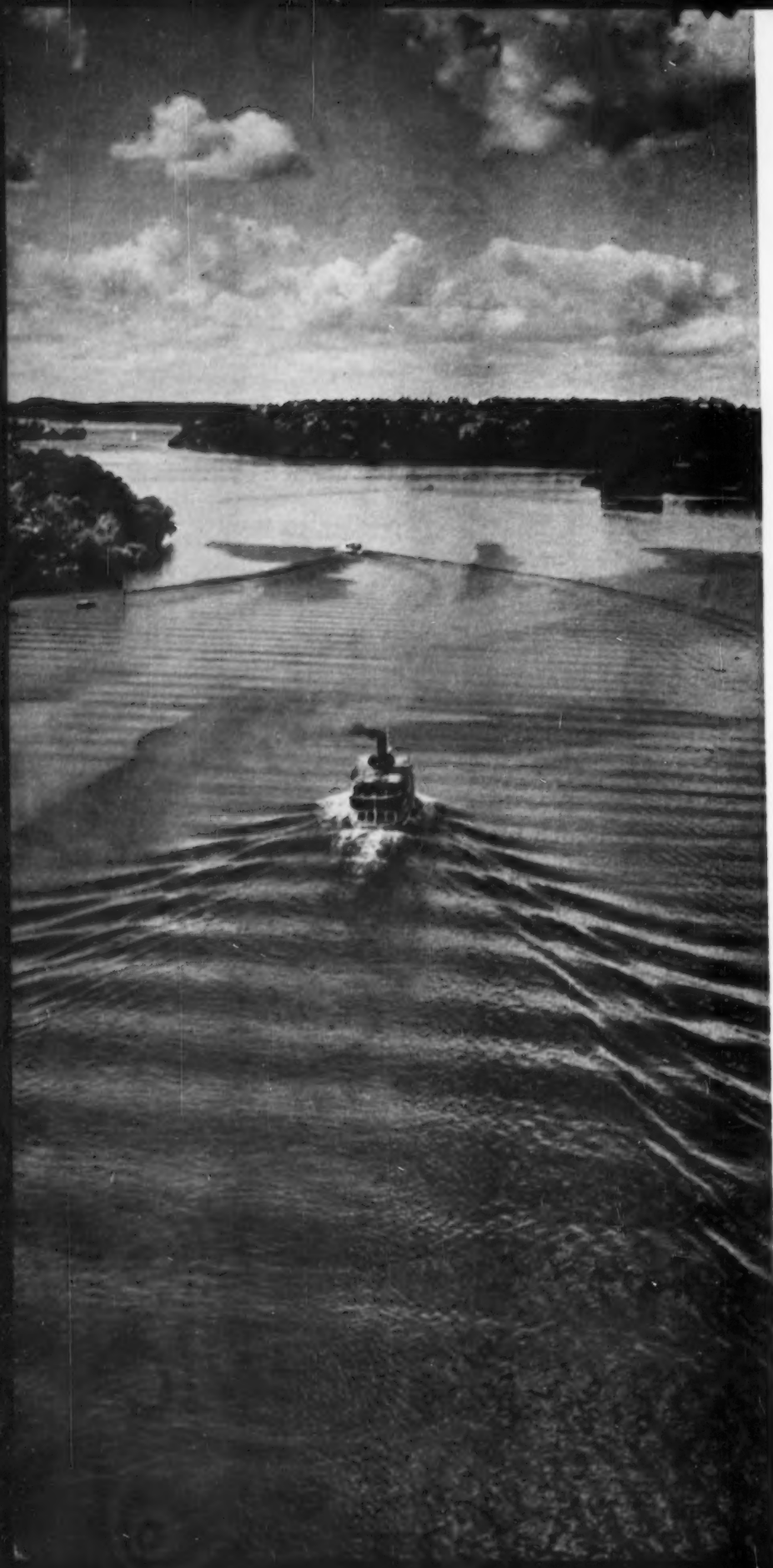
2 isolation by selective focus

You can subdue the background and isolate the subject by utilizing narrow depth of field. Ed Feingersh used a Nikon, exposed 1/200 sec at f/5.6 in shot of Hong Kong boy, above. Left, Ted Davies isolated playing boy by throwing him out of focus and framing him with sharply focused fence.

3 isolation by motion blur

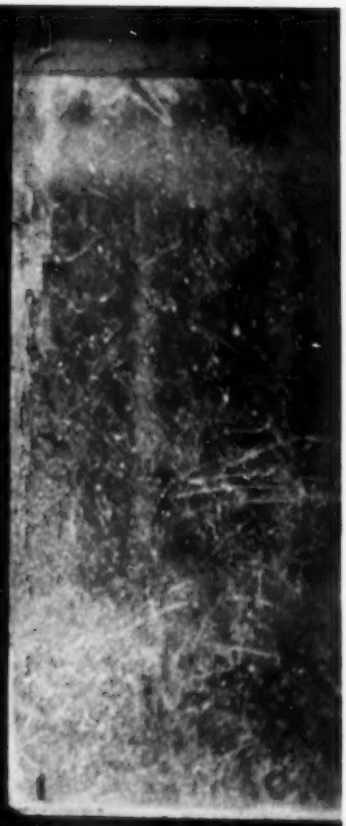
David Moore of England used a slow shutter and panned his camera to make this impressionistic picture of a bicycle racer surrounded by blur.





4 Isolation by high camera angle

By shooting down on the subject—from an airplane, a bridge, a skyscraper, or a stepladder—the photographer often can surround his central object with bare ground or plain water. Here are two different subjects, both isolated by a high angle. Riverboat, left, was photographed near Stockholm by Jürg Klages. Nude, right, is by Andre de Dienes.



6 Isolation by cropping

Placement of the subject within the picture area also can heighten the effect of isolation. This is best done on the viewfinder before exposing, but sometimes can be accomplished by cropping during enlarging. Unusually composed portrait of dancer Lelia Goldoni, above, is by Bob Willoughby.

5 Isolation by contrast

Still another way to isolate the subject and make it stand out boldly is to utilize strong tonal contrast. Top left, Don Briggs silhouetted black, umbrella-carrying figure against a high-key foggy background. He shot from a car with an Exakta equipped with a 135-mm lens. The film was Tri-X.

Tiny chick in a huge world is seen as a white spot against a dark background by Shinichi Kanamori, of Japan. His camera was a Rolleicord and his exposure was 1/50 sec at f/5.6 on fast pan film. This shot took a prize in POPULAR PHOTOGRAPHY'S *International Picture Contest.*

Typical large press-camera coverage of murder trial, sanctioned by presiding Calif. Superior Court Judge Harry J. Neubarth, was photographed by Bill Young, San Francisco Chronicle, with slow exposure, Graphic clamped to courtroom chair.

Unobtrusive 35-mm-camera coverage of NPPA banquet demonstrated manner in which courtroom photographs can be made without interfering with proceedings. Right, banquet group, posing for photographer in foreground was caught with Leica camera, Tri-X film.

By JOSEPH COSTA
Chairman of the Board,
National Press Photographers Association

Chief Photographer,
King Features Syndicate—N. Y. Sunday Mirror

Camera in the Courtroom

Miniature cameras and new fast films have won an important victory in the NPPA's campaign to sanction courtroom photography

CANON 35
of the
CANONS OF JUDICIAL ETHICS OF THE AMERICAN BAR ASSOCIATION
••••

"Proceedings in court should be conducted with fitting dignity and decorum. The taking of photographs in the courtroom, during sessions of the court or recesses between sessions, and the broadcasting or televising of court proceedings *are calculated to detract from the essential dignity of the proceedings, distract the witness from giving his testimony, degrade the court, and create misconceptions with respect thereto in the mind of the public* and should not be permitted."
[Italics ours. Ed.]

THE Honorable Herbert Brownell, Jr., Attorney General of the United States, stood at the lectern. The luxurious banquet room of the Broadmoor Hotel in Colorado Springs was packed to capacity, with overflow tables extended out into the public foyer and onto the terraced breakfast room adjoining. A good, hearty, typically American roast-beef dinner had just been consumed, the tables cleared, and the usual after-dinner introductions of the many important people attending completed.

This was the annual awards banquet of the National Press Photographers Association. Yet there seemed to be something lacking. Despite the presence of many dignitaries AND the Attorney General of the United States, news cameras in the area immediately surrounding the lectern were conspicuous by their absence. There was nothing going on to create disorder, distract the attention of the audience, or otherwise interfere with the dignity of the occasion.

It wasn't that cameramen assigned to cover the event were barred. But we of the NPPA felt that the occasion of Mr. Brownell's visit to our tenth annual convention offered a dramatic opportunity to demonstrate the fact that news coverage need not (*Continued on page* 145)

Attorney General Brownell, photographed without his knowledge by 35-mm camera with fast telephoto lens, addresses NPPA banquet audience on camera reporting in the nation's courtrooms.

When your film is too

IT'S MORE than a year now since the newest batch of high-speed films began taking their place on the market—Du Pont Superior Press, Kodak Royal Pan, and Ilford HPS sheet films; and more recently, Kodak Tri-X, Gevapan Press, and Ilford's improved HP-3 and HPS in 35-mm and assorted roll-film sizes.

These new films have given black-and-white photographers heretofore undreamed of versatility. The 200 and 400 ASA film speeds officially assigned to these various films are merely a starting point. Ratings of 650, 800, and even 1,000 have become commonplace not only with normal unforced development but with drugstore photofinishing as well. Available-light photography is now well within the range of camera enthusiasts owning moderately priced equipment.

Considering the speed and underexposure latitude of these new films and also the surprisingly fine grain patterns they provide, it is easy to see why so many amateurs and professionals have made them their number one choice for all-around work.

But this has introduced a new problem—the danger of overexposure; especially, when indoor available-light shots and outdoor exposures are included on the same roll. Until now, underexposure has been the big bugaboo, but today many cameras and lenses are incapable of coping with this new surfeit

Reducing depth of field

Distracting background was produced by f/16 aperture needed for correct exposure of fast Tri-X film (1/250 sec).

Opening lens to f/5.6 to throw background out of focus resulted in gross overexposure—at same shutter setting.

Subdued background, correct exposure were achieved at f/5.6, 1/250 sec with a No. 2 and a No. 4 N. D. filter.

Slowing down the shutter

Water was frozen in an unrealistic pattern when subject was correctly exposed on Tri-X film—1/500 sec at f/11.

Slowing shutter speed to 1/50 sec (at f/11) to produce realistic splash effect resulted in obvious overexposure.

Correct exposure and acceptable portrayal of motion were achieved with No. 2 and 4 N.D. filters at 1/50 sec, f/11.

By EDWARD MESSING
Tiffen Marketing Co.

fast

Neutral density filters can reduce the effective light without change of shutter speed or lens opening

of light. For example, the simple box camera with its single shutter speed and nonadjustable lens is geared to the well-known medium-speed-type films like Plus-X and Supreme, Kodak Verichrome, and Ansco All-Weather Pan. Grainy, unsharp overexposures invariably result from exposing any of the newer high-speed roll films in direct sunlight.

The overexposure problem is almost as serious with many modern cameras having a complete range of exposure controls—shutters operating as fast as 1/500 second coupled to high-speed lenses that stop down no farther than f/22. (Some of the earlier roll-film camera lenses used to stop down to f/45, and many large-format camera lenses today go down as far as f/64.) Happily, there is a simple and relatively inexpensive lens accessory that can be used to cope with the overexposure problem—the neutral density (N.D.) filter.

Neutral density filters are not new. Photographers haven't had much need for them in the past, however, so they aren't very well known. It is safe to predict though that they will be used and seen with increasing frequency from now on. Basically, they are filters that reduce the amount of incident light they transmit by a given amount which is generally indicated in the manufacturer's descriptive name for the filter. (The Tiffen N.D. filter line includes an X2, X4, X8, (*Continued on page* 144)

Controlling flash brilliance

Handkerchief draped over flash reflector reduces flash intensity about 50 percent—a cumbersome, inexact technique.

Correct flash exposure was obtained with No. 5 lamp, 10 feet from subject, with lens at f/16, shutter synched at 1/500.

Subject was exposed with No. 5 lamp five feet away, lens stopped down to f/22, at 1/500 sec—resulting in overexposure.

Placing neutral density filter of desired light-reducing power in front of lens precisely controls flash intensity.

Five-foot shot was correctly exposed under same conditions as shot above but with No. 2 and 4 N.D. filters in front of lens.

Photographs by Carl Lindquist

1955 arbutus indiana university

VOL. 62

Unposed, available-light shot of students standing in corridor was made with 35-mm camera. It appears as lead photograph in "Campus Life" section of the 1955 *Arbutus* book.

Six pages are devoted to coverage of a formal dance. This shot, made in a lounge, utilized

A new

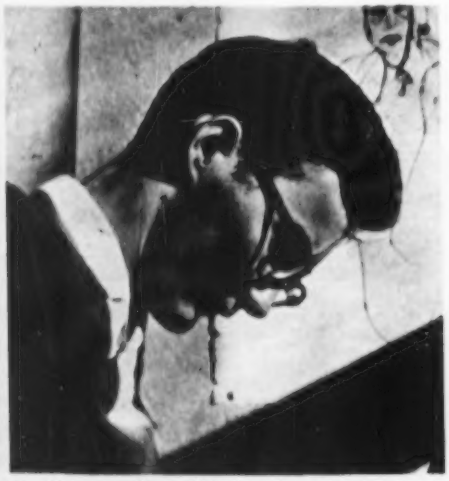
Indiana typical of new trend to available-light techniques

By CARL PURCELL
Photography Editor
of the 1955 *Arbutus*

Many of the nation's college and university yearbooks have a new look this year. The stodgy flash or flood, look-into-the-camera pictures that have been accepted clichés are now for the most part replaced by the realistic, available-light type. One of the best yearbooks to come out this season was the University of Indiana's Arbutus. *Skillful, imaginative student photographers used small cameras, fast lenses, and top-speed emulsions to catch the feeling of their campus in more than 260 pictures by available light only. This is how they did it.*

•

The photo staff of the 1955 *Arbutus*, the yearbook for Indiana University, was faced with a tough problem. The editorial theme was summed up in the question, "What is Indiana University?"

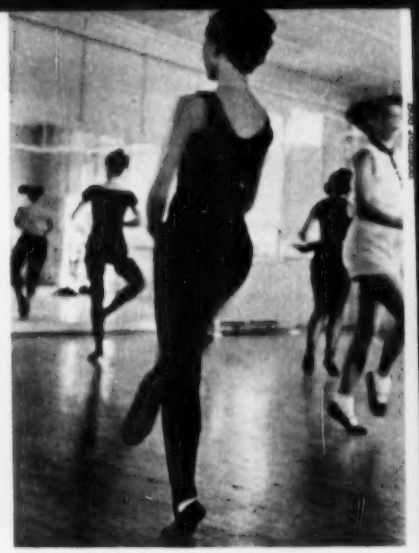


Caption reading, "Shadows in art," appears under this photograph in "Arts and Science" section.

Fall Carnival, an annual event, provided good subject matter for available-light treatment. Here, an announcer was caught in action.

illumination from ceiling and wall lights. Other pictures covered dancing, queens, dress.

Casual shot of couple sunning themselves on quarry rocks is characteristic of informal way that assignments were handled. It appeared on spread devoted to student swimming activities.



Slow shutter speed and subject action create original photograph of students during a dancing rehearsal.

look
in college yearbooks

and we were assigned to interpret and answer the question with pictures.

It would have been an ambitious undertaking for any magazine photo staff. The one thing we wanted to avoid was the stereotyped yearbook approach with a "postcard" presentation of campus scenes and buildings. To us the subject matter and emotional impact of the picture was more important than the technical perfection of sharp focus and perfect lighting.

A yearbook is traditionally a memory book, and we felt that a former student likes to look back and recall the little things that make up college life rather than the larger and more obvious aspects. We wanted to capture the thrill of an opening night for a college theatrical, the magical moments of a coed's first

Hartley Alley

Staff members of *Arbutus* look over layout proofs. Total of 85 students helped.

Actor waits in stage wing for his cue during performance of a University production of Shakespeare.

Carl Purcell

General room lighting of an art class produced enough illumination to let photographer catch candid action.

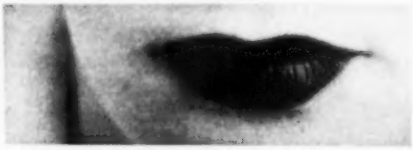
An imaginative layout from *Arbutus*

THE QUEEN

Jane Ransel

. . . Arbutus Queen.
The eyes have it . . .
Jane is excited by her
world and the people
who inhabit it. With
quick energy she sees
each thing about her.
Every subtle movement
of her eyes unfolds
warmth and friendliness.
A girl full of vitality and
good humor. Pretty eyes
. . . pretty knees . . . pretty
girl.

formal dance, or the dreamy mistiness of the campus on a rainy day. Many of the photographic images needed for telling the story of our college years were elusive and hard to find. For instance we wanted to record the enthusiasm and mass feeling of a football pep rally. We had to attend several rallies before we finally came up with a shot which satisfied us. The final picture caught the whole mood of the event, the banners, the torches, the moving crowd, and tense



Jane's mouth reflects an inquisitive nature. Its every movement hints at the whimsical and reflective processes of her mind. A faint smile appears . . . she bites her lip. Then quickly transition to a sphinx-like calm.

Photographs by Jack Wolpott

faces. We never worked on the basis of just one or two shots when covering a general assignment. It was more likely one or two rolls and if we were lucky we would come up with a few good pictures. Literally thousands of frames were exposed in composing the picture story of Indiana University.

The 1951 *Arbutus* pioneered with the available-light approach to yearbook photography and came up with some very effective results. This year we were in an even stronger position with improved lenses, Tri-X film, and Promicrol developer. The *Arbutus* had a new office this year and for the first time had its own darkroom, with new stainless-steel sinks and a (*Continued on page* 120)

Indoor color exposure

color series part 6

By NORMAN ROTHSCHILD

HOW often have you wanted to try your hand at indoor color shooting with floodlights, but have shied away from it because of the thought of the technical difficulties it might involve?

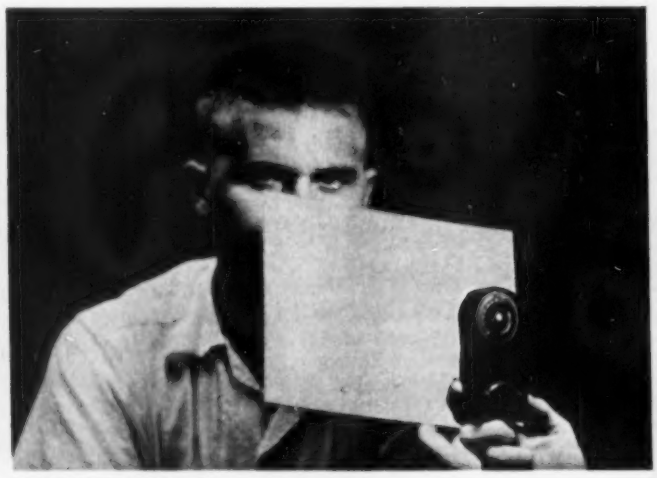
Somewhere, perhaps, you received the impression that indoor color shooting is especially difficult and beset with complex exposure and lighting problems. Actually indoor color shooting is no more complex than making pictures outdoors. The lighting problems and exposure problems are quite similar. (For a discussion of the basic problems of outdoor color see *Color Exposure, Color Series Part 3*, POPULAR PHOTOGRAPHY, July 1955.)

On the next pages you will find simple solutions to conquering the problem of lighting contrast and suggestions for getting correct exposure easily, with or without a meter. One advantage over outdoor shooting is immediately evident. While outdoors you are generally at the mercy of the weather man, in indoor shooting the light is completely under your control, making you the master of the situation.

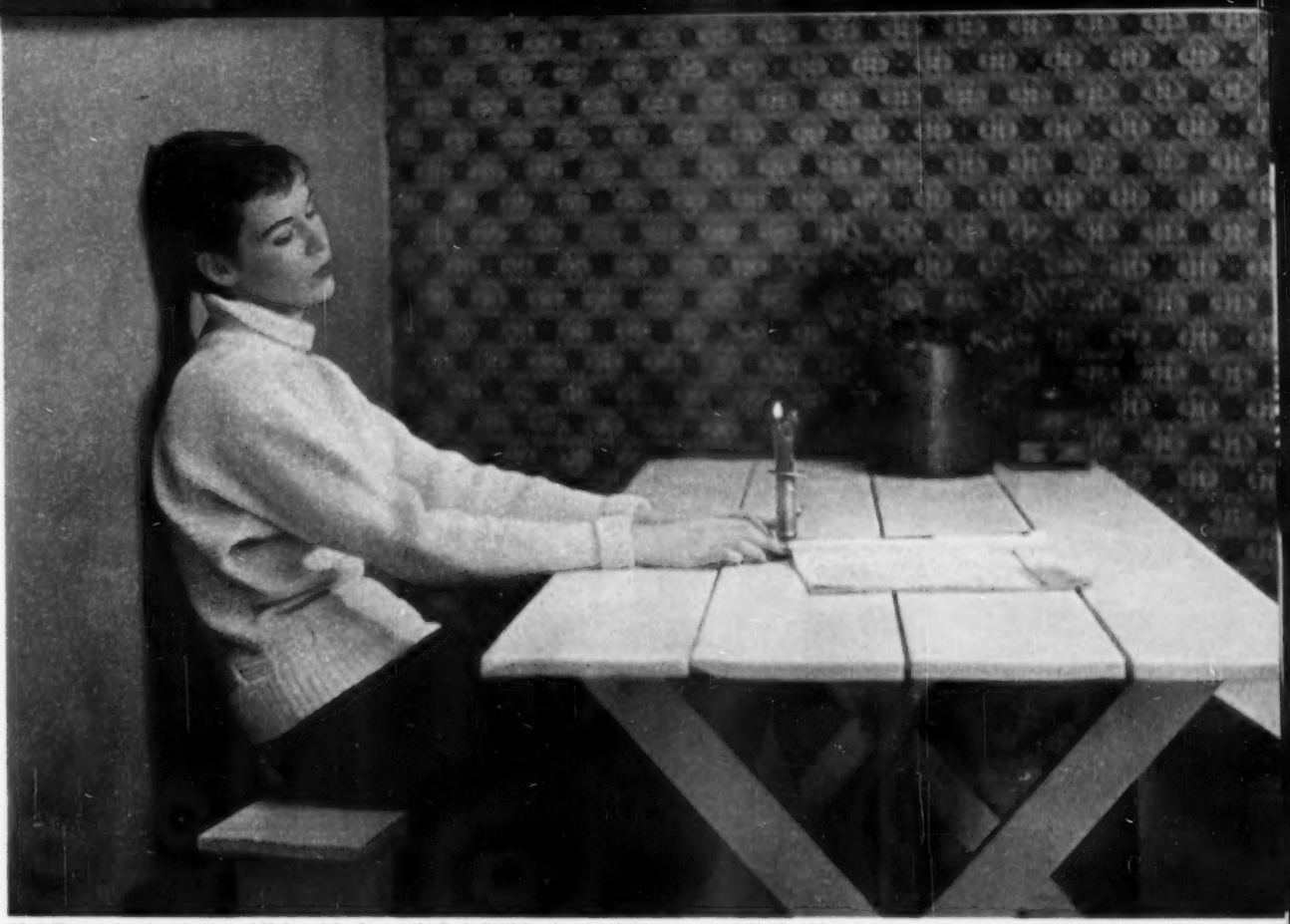
There are two basic problems involved. First, color film doesn't have the latitude or leeway in exposure which black-and-white materials have. In addition, the black-and-white photographer can compensate for errors in exposure and lighting to some degree by manipulation during film developing or when making enlargements, but very little of this manipulation is available to the color worker. In order to get a particular effect everything must be right at the time the shutter is tripped.

Because of the limited exposure latitude of color films, the total range of brightness from light to dark should not be excessive. (*Continued on page* 112)

Incident-light meter is especially useful in establishing lighting ratios, which must be kept rather low in color work (see opposite page). Meter is held near subject as shown. Reading is made for mainlight only, then for the fill-in light only.



Reflected-light meter can be used with a neutral gray card to establish lighting ratio. Card is held close to subject and separate readings are made of the mainlight and fill. This is more accurate than reading directly from the subject.



Hal Berg simulated natural light with electronic flash in this picture. Exposure, on roll-film Ektachrome, was 1/100 sec at *f*/4.5.

Indoor exposure problems in color are basically the same as they are outdoors, with the difference that indoors you usually have much more control over the lighting. This is especially important when establishing a lighting ratio — the difference in intensity between light falling on highlights and shadows. With color, the ratio should be kept low or shadows will tend to reproduce very black if exposure is based on highlights. The top series of pictures at right demonstrates the effect of "flat" (1:1) lighting, moderate contrast (1:4 ratio), and extremely contrasty lighting with no fill-in to illuminate the shadows. As a rule you shouldn't exceed a ratio of about 1:4 if you want both highlight and shadows to be properly exposed. The bottom row demonstrates the effect of two stops overexposure, the exposure recommended by meter reading, and two stops underexposure. Note how color saturation tends to increase with underexposure, decrease with overexposure. Exposure latitude with color film is much less than it is for black-and-white emulsions.

LIGHT BALANCE controls contrast

1:1

1:4

no fill

EXPOSURE controls density, saturation

f/4

f/8

f/16

1 *Frank F. Sornberger, Cortland, N. Y.*

Bad-weather pictures from

3 *Frank D. Scharf, Forest Hills, N. Y.*

WHEN fog closes in, when mist rises in the warm air of summer, when rain falls or snow flies, it can be good picture weather—even for color. Here are four cases in point: four excellent bad-weather photographs. One was made under a thunderclouded sky, one in a drenching rain, one through heavy harbor mist, one in snow-hazy light. Some special problems are presented by shooting under such adverse weather conditions. First, of course, the camera must be protected from rain, snow, or sleet. Frank Scharf did it by stepping into a doorway; the other three photographers here had no such problem. Next, poor light often requires a very slow shutter or a very wide aperture, or both. Scharf and Helen Man-

1 As a violent thunderstorm approached over upstate New York, Frank Sornberger got this dramatic picture with a 35-mm Vito II, on Kodachrome Daylight Type film. He recorded the unusual colors with an exposure of 1/50 second at aperture of *f*/5.6.

2 At daybreak in Fort Myers, Fla., Helen C. Manzer photographed a shrimp fleet through heavy mist. Her camera was a Leica M-3, her film Kodachrome, and her exposure ¼ second at *f*/12.5. She says, "The feeling of mystery was intriguing to me."

3 During a downpour on lower Broadway in New York City, Frank Scharf made this "grab shot" with a Leica he always carries in his brief case. On Kodachrome Type A, with a conversion filter, he exposed at ¼ second, *f*/2.8, kneeling to get the low angle.

2 *Helen C. Manzer, New York City*

4 *Nelson M. Raymer, Reardan, Wash.*

our readers

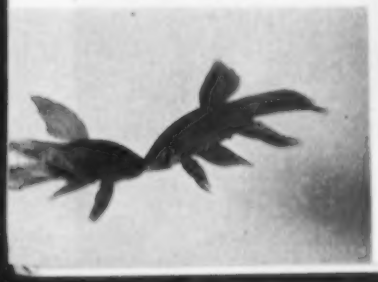
zer both shot at ¼ second; Scharf's lens was almost wide open, but Miss Manzer was able to stop down for the depth of field she needed. Frank Sornberger employed the most nearly normal exposure (1/50 second at *f*/5.6), because there was still enough bright sun on the landscape. Finally, there is the question of color balance; daylight emulsions are matched to direct sunlight or bright shade, and you must expect some deviation from color fidelity unless you use a correction filter. (None of these four photographers did. Scharf used a conversion filter because he happened to be loaded with Type A film.) Usually, though, you will find that the color rendition actually heightens the effect.

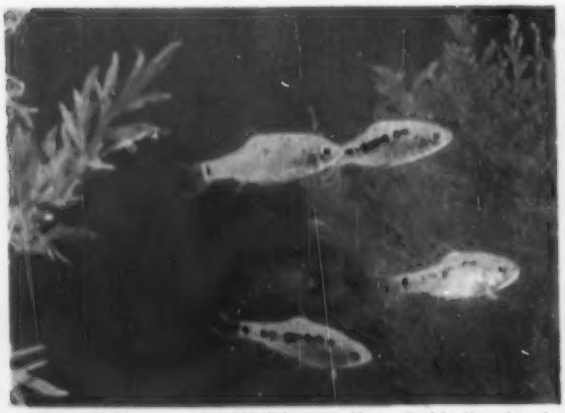
4 For a camera-club assignment on "Smoke," Nelson M. Raymer made this picture in his home town of Reardan, Wash. He used a Contax S and Kodachrome Daylight Type film. The exposure, 1/50 at *f*/3.5, was made just as the engine's light came on.

Top lighting was used with a community tank. Plant life adds to underwater feeling. Exposure: 1/100 sec at f/11, on Anscochrome film.

Your aquarium-

Speedlight at a 45-degree angle froze a pair of male Bettas in front of a focus glass with marked-off field of view.





Sidelighting was supplied by two No. 5 flashbulbs placed at each side of tank. Plant was placed to left of focus glass. Ektachrome Type B film was used for small photos on this page.

Backlighting and fill-in were provided by SM flashbulbs in this shot of a Kissing Gourami. Exposure: 1/100 sec at f/16.

By ARTHUR BLEICH

Photographs by the author at Aquarium Stock Co. of N. Y.

an underwater color studio

Colorful tropical fish can be photographed at home without special equipment

THERE are unlimited possibilities for photographing colorful tropical fish. One type seems to kiss (Kissing Gourami), another will fight with males of its own kind (male Bettas), and another spits water (Archer Fish), catching live food on the fly. There are many others which do nothing more than live and breed, yet are excellent subjects for beautiful color transparencies.

Since an estimated 20,000,000 Americans keep tropical fish, chances are you have some or know of someone who does. Asked pleasantly enough, your fish-fancier friend will probably be happy to co-operate with you by lending you a few to photograph. If you borrow or buy some, here are a few important things to remember. Tropical fish do well in water having an average temperature of 75 degrees. In a tank with living plants, they require no change of water and two feedings daily.

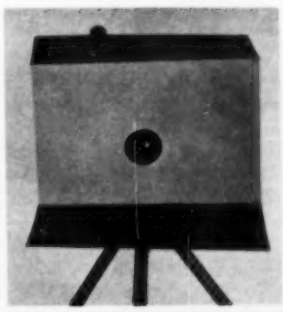
Although good pictures may be made in the aquarium where the fish live, more controlled and striking results may be obtained by moving the fish to a "studio" tank, which has a pane of glass running lengthwise in it to keep the fish in focus. Another advantage to moving the fish into a new habitat is that you can get in close and thus fill up the entire picture area with one or more fish. When transferring the fish into the studio tank, remember to temper the water (which should stand for at least one day) with hot or cold water until the temperature matches that of the water the fish is living in. A clean photographic thermometer may be used for this and the temperature should be checked from time to time. In a five-gallon tank, temperature will remain fairly constant for about five hours.

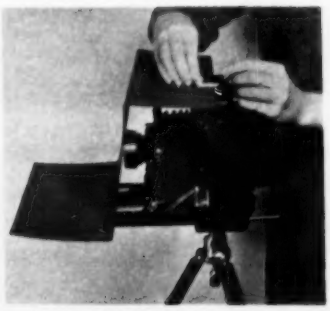
Materials required

The materials required for photographing tropical fish are relatively few and do not cost too much. A small tank (3 to 5 gal), some colored paper for backgrounds, masking tape (which is convenient because it may be torn with the fingers), glass cut to size (for a focus glass), glass clips to hold the focus glass in place, a grease pencil to mark off the field of view, a mirror for fill-in with sidelighting, and some colored gravel or crystals should you desire to show the bottom of the tank in some pictures. The above-mentioned materials may be purchased for about $10, the most costly item being the tank, which will run anywhere from $1.50 to $4. Photographic equipment consists of a camera, color film, close-up lens and adapter, tripod, and a flashgun (preferably with an extension outlet) which can be removed from the camera body.

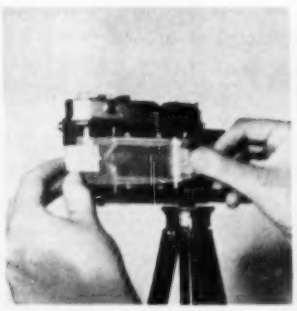
Getting close up

In order to get a large image of the fish on the film it is necessary to employ a lens of long focal length (on 35-mm cameras) or use close-up lenses. All the photographs in this article were taken by means of positive supplementary



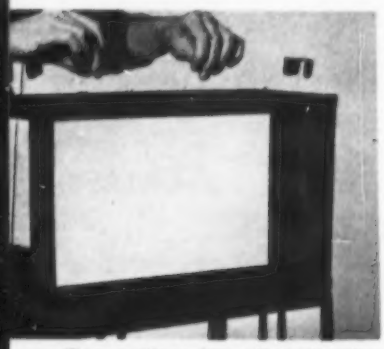


Camera shield is used to eliminate reflection of camera (with 45-degree lighting) on the front glass of tank. Made of stiff paper or soft cardboard, the shield must be wider than camera body. Cut out a hole large enough to clear the lens. After determining the field of focus and setting the range, shield is taped to camera. Field of focus is marked off on a sheet of glass inserted lengthwise into the tank. Glass must be almost as wide as the tank to keep the fish inside of focus range.



Focusing and determining range of field with cameras lacking groundglass viewing surface is accomplished with glassine negative envelope or wax paper. Cut to film size, paper is taped to film track (left). With reflex camera and close-up lenses (right) an attachment is available for focusing through viewing lens, then raising taking lens to viewing lens position.

Setting up tank and lights

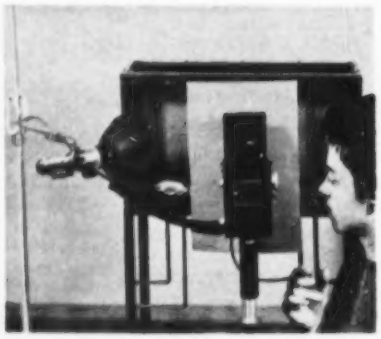


Focus glass is steadied with glass clips and placed about 2 in. from tank front. Adjust to close-up lens used.

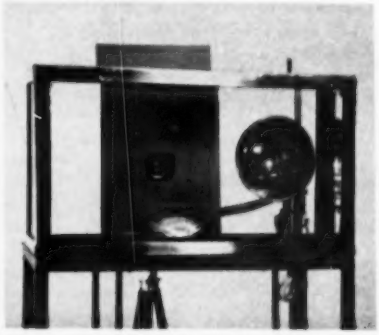
Focus on a ruler placed midway between focus glass and tank front. Camera is set on a tripod at correct distance from tank.

Field of view is marked off by moving a white card until edges show on groundglass and using a grease pencil on the focus glass.

Pilot light the tank while looking into the viewfinder. Use lamp to determine where no reflections occur.



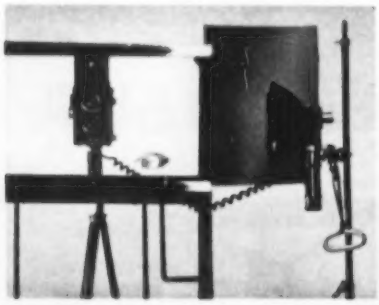
Clamp flash holder to light stand or other object. This leaves one hand free to coax fish into the marked-off field of view.



Rear view of 45-degree lighting setup shows half of field of view marked on focus glass, preventing shadow on background.

Sidelighting setup

Blinder placed between light source and camera prevents light spilling onto the lens **1**. A mirror may be placed on opposite side of tank for a fill-in. With a two-light setup, cardboard blinders are taped to both sides **2**.



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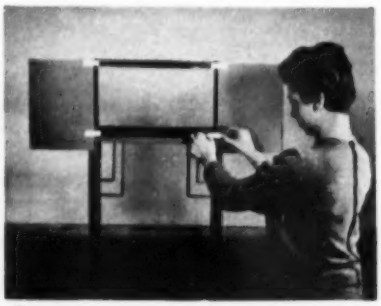

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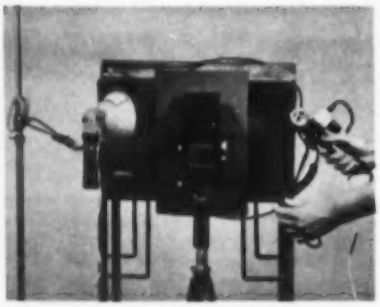
Toplighting fill-in

Toplighting on background is used as fill-in. Use adapter and 3-way plug in socket if flashgun lacks extension outlet **1**. For midget bulbs **2**, screw bayonet adapter in tank reflector, switch on, and plug into extension.



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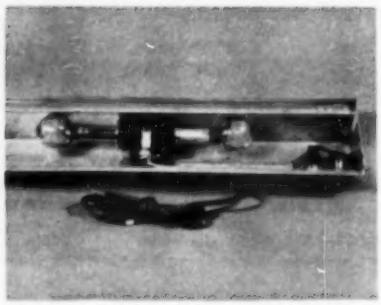


2

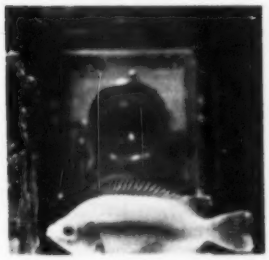
(close-up) lens over the regular camera lens. As the depth of field is quite limited when strong close-up lenses are used, a sheet of glass is placed lengthwise in the tank and held in place by two clips. This sheet of glass is used to keep the fish in focus at all times and may be adjusted to provide as much depth of field restriction as required by the particular close-up lens employed. The fish is placed between the front glass of the tank and this movable focus glass. When using an extremely strong supplementary lens, depth of field might be as shallow as 1½-in. Any medium-size tropical fish can swim and turn around in this small area, as they have extremely pliable spines. As a general rule, the following depths of field will apply when a +3 lens is used: 50-mm, 2½-in; 75-mm, 2-in; and 135-mm, 1½-in. These are at the closest allowable distances to the subject as per instruction with the lens.

Lighting methods and sources

The most instrumental factor in producing well lighted and correctly exposed transparencies is the method used to illuminate the tank. There are two types of lighting which may be employed. The first is sidelighting and the second, 45-degree frontlighting. Sidelighting produces beautifully highlighted plants and fishes but tends to show all particles of floating matter in the water as tiny white specks. These are eliminated with 45-degree lighting but there is always the possibility of light reflections on the glass if the tank is not first pilot lighted. Although I prefer the latter method, both yield beautiful color transparencies. With either method, make sure not to have any rocks or plants between the light source and the fish, or you will end up with a badly underexposed transparency. In sidelighting, a fill-in light may be used on the opposite side of the tank. However, a mirror in the same position will throw back enough light to fill in the fish and add sparkle and highlights to the plants. There is no need to change the exposure if a plant or rock blocks the reflected light. Stop down ½-stop additional if there is fairly open water with few or no plants. A third method, toplighting, may be used with either method as a fill-in for the background to give it evenness. But in (*Continued on page* 126)

Six common errors to avoid

1 Camera reflects if blinders for sidelighting and shield for 45-degree lighting are not used. **2** Prevent frontlight reflection by first pilot lighting tank. **3** Dust, algae, air bubbles, and water on glass will show if not removed. **4** Avoid plants in rear as they cast shadows and will be out of focus. **5** Close up, usual shutter speeds will not stop motion. Use fastest speed. **6** Unless fish is in profile, body sides act as mirrors with sidelighting setup.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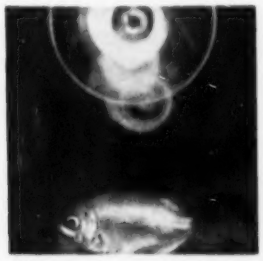
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6

Tropical Fish Specimen Guide

Here are names and some facts about the more popular fish species

NAME	LENGTH (in inches)	EASE OF POSING	SHUTTER SPEED
Platies and Swordtails	1 - 4 (excl. tail)	Good	1/100
Black Mollies	1 - 2	Good	1/100
Guppies	1	Fair	1/100
Head and Tail Lights	1	Difficult	1/200
Sumatranus	1	Difficult	1/200
Barbus Shuberti	1	Fair	1/200
Jewel Fish	2 - 4	Good	1/50
Bettas	1 - 2½	Good	1/50
Gourami, all types	1 - 5	Good	1/25
Angel Fish	1 - 3	Good	1/25

Chart is only a general guide. Fastest shutter speed possible must always be used as even the slowest fish will sometimes speed up its movements. Ease of posing simply means a fish can be maneuvered into position in front of the focus glass by gently moving hand in front of tank. Never make a sudden movement.

Want to shoot some home portraits?

How to shoot yourself

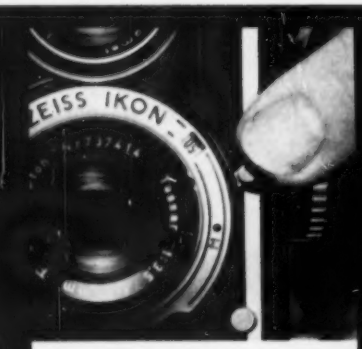
By WILLIAM E. HENNING

SELF-PORTRAITURE has a long and honorable history. The first known self-portrait was made by the Egyptian Ni-ankh-Ptah in 2650 B.C., and since then virtually every master has considered himself fit subject for his brush or pencil. Rembrandt was at his greatest with the self-portrait, and he made over one hundred.

By and large, photographers have not made a comparable effort to portray themselves. This is strange, for the special difficulties are not great, and in many ways the self-portrait provides the ideal way to (*Continued on page* 124)

Here are six of the easiest, most practical ways to take your own picture

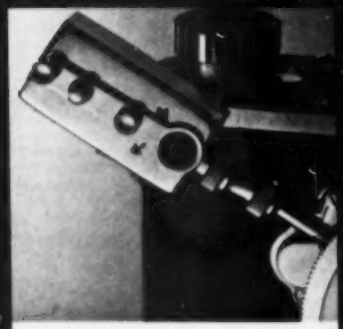
Shoot into a mirror. To avoid getting camera in picture, hold low.



Use built-in self-timer. It gives time to move into proper position.

Trip shutter with string. Mirror behind camera lets you see pose.

Use long cable release, the most "professional" self-portrait aid.



Use accessory self-timer if your camera doesn't have one built-in.

Foot pedal to operate remote cable release is most unobtrusive.

On a Boston corner, John Bryson (left) made this amusing self-portrait with friend Jeff Wylie, using Leica, tripod, self-timer.

Here are 14 pages of tips, tricks, and how-to information everybody can use

Here's Al posing before a polished electric broiler.

Speaking of self-

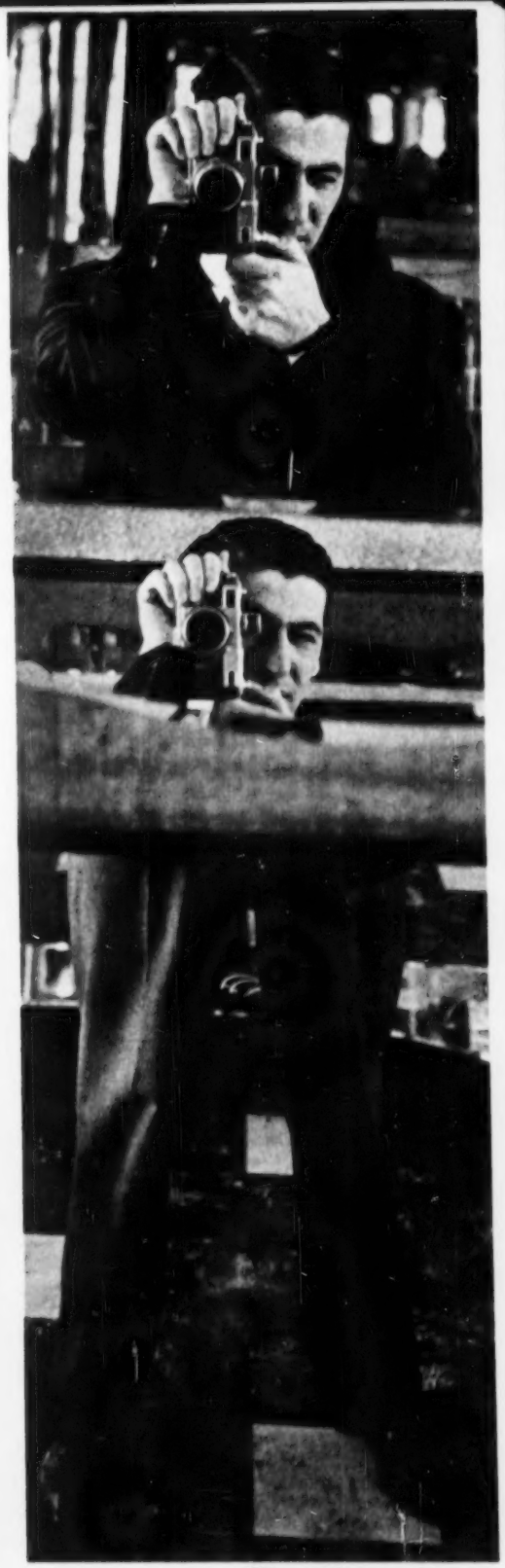
Alfred Gescheidt is an inveterate collector of 'mug shots' made with mirrors and assorted household accessories

Three-way mirror affords Al a natural situation for a gag self-portrait. He used a close-up lens on twin-lens reflex. Expression is copyright.

portraits...

HE'S quite frank about it: "I enjoy distortions for their own sake, and get a kick out of making them." That's Alfred Gescheidt talking about pictures like these four. He has a big collection of them, some taken by friends, but most of the best ones self-portraits. He uses a wide variety of reflecting surfaces to give his image back to the camera. In addition to the mirrors, spoon, and broiler shown here, he has shot himself in the polished surfaces of a sandwich grill, a toaster, a deep-fat fryer, and a dozen other accessories and appliances. A number of off-beat shots like these have been made on assignment; the rest simply for his own satisfaction. Al says, "Despite a seemingly insane look in these shots, I consider myself very sane, conservative, and normal." Whatever one may decide about *that*, his houseware mug-shots are clever. Could you do as well?—

Silver spoon reflects Al's image as he trips remote-control switch for the bounce flash he used on this shot, made with Proxar lenses.



Mirror shop was heaven to narcissistic head-hunter Gescheidt, who here presents his severed head on a table.

Dappled shade is flattering to this charming girl.

A small floodlamp lighted this glamor portrait.

Your model lives next

Against bright sky, he exposed for shadows in beach pinup

Daylight through a window was illumination for informal 35-mm portrait.

On a shaded street, Maroon made a high-angle shot.

Not all the pretty girls are in movies or model agencies.

You'll find hidden talent on your street

door

Photographs by FRED MAROON

One of photography's saddest sights is an amateur with a camera slung on his shoulder, looking at the lush, beautiful magazine covers on a newsstand and shaking his head sadly. He's thinking, "I could make big-time covers like that, if only I could pay the model fees!" True, twenty bucks an hour puts professional models beyond the reach of all but the well-to-do amateur.

But there's another way into the big-time, at least as far as models are concerned. Discover your own! What makes you think all the most beautiful girls in the world are already in movies or on magazine covers? Tomorrow's Marilyns and Ginas are still living ordinary lives—some of them probably very near where you live.

Fred Maroon has found a lot of these unsung beauties in the U. S. and abroad; a good many of them right in his home town, Washington, D. C. Here are a half dozen of the pictures he has made of them. He hasn't made stars or fashion models out of them, but he has given them fine sets of portraits and glamor shots in exchange for their co-operation. And he has given himself the satisfaction of working like a professional, with the pleasantest companions photography can offer: a camera and a pretty girl.—■

As snow fell, the author captured the exuberance of a dark-haired local beauty.

Why do this . . .

WHAT'S WRONG WITH THIS PICTURE? HERE ARE SIX POINTS TO AVOID IN POSING A FAMILY:

1. Don't line your subjects up so that you get monotonous rows of heads and awkward-looking legs.

2. Don't shoot head-on to couch with subjects sitting far back—you'll get small heads, big feet.

3. Don't pose subjects with legs parallel and arms prominent; attention will all be on bony limbs.

4. Don't let a busy background detract from the faces of your more important human subjects.

5. Don't let parents worry about the children; keep everyone relaxed by talking to them.

6. Don't keep group posing more than 15 minutes. Youngsters get restless; spontaneity is lost.

Family portraits

They're easy to take and more fun if you follow a few simple rules

By WILLIAM J. CARTER

How often you hear people say that they wish they had one good picture of the family together, or even just one good picture of the children together? No other picture is so strongly desired and yet, alas, no picture is so difficult to take.

It is relatively easy to get an attractive picture of one child, but to get two children looking well at the same time is considerably more of a problem; and when you add a third child and/or a mother and father, the mathematical odds against you are enormous. I have worked in this field for many years and still face family groups with trepidation. There are some basic general rules, however, which may help the novice in this sometimes frustrating field.

First of all let's consider how to compose the picture. This is far more complicated in group portraits than with single subjects because you have to arrange so many people close together. Be sure, therefore, to keep your setting simple. Look for a spot in the home that is pictorially uncluttered, preferably a large area of bare wall space. Avoid wallpaper. Watch out for lamp shades, window ledges, and picture frames that might stick out from somebody's head. On the other hand, do *not* exclude objects that might help create a feeling of home atmosphere. You don't necessarily want the bare background of a studio shot. A corner of the rug, a part of a picture, a lamp, a fireplace, a table, etc., all help make the surroundings look lived-in and lend a feeling of intimacy to your portrait. The main thing is to be

when you can do this?

See how much more interesting this arrangement is and how much more comfortable and pleasant looking are the members of this family!

Here are examples of good portraits that show a lively spontaneity.

Little sisters were asked to play and sing at the piano. Difference in their sizes and lighting creates composition in depth. Light was directed at girl in rear. Exposure, 1/50 second at f/5.6.

Problem: Three lively subjects. Solution: Coaching them to sing nursery rhymes together, each child speaking different lines, thus making a game out of sitting. Shot on shadow side of house, using photofloods for fill; 1/100 at f/3.5.

Lighting is the dominating element here. Pumpkin's inner glow is from light bulb on extension cord; photoflood at left adds subtle, but dramatic illumination; bounce flood from ceiling fills in; 1/100 at f/3.

Photographing youngsters at play when they are completely themselves makes a portrait all the more memorable. All faces were caught in difficult-to-get action shot with exposure of 1/100 second at f/3.5.

The secret: Let children be themselves

Facial expressions of mother and two sons, photographed after they had become engrossed in story book, reflect genuine interest. Camera level was raised to avoid including obtrusive-looking knees. Exposure, 1/60 second at f/4.

Every moment of babyhood is precious and especially tender are those when father and baby enjoy each other. This scene has the important ingredient of spontaneity; shooting close up adds intimacy.

conscious of these objects, use them when they improve the picture, but do not be blind to them when they distract.

With the proper setting established you must place your subjects so that you have maximum view of faces and minimum view of elbows, knees, and ankles. Do *not* line your subjects up on a couch and shoot head-on. You will get a thin row of small heads running across a broad picture area with the couch line dividing the space in two. Fill the whole rectangle of your negative with faces by staggering your subjects on different levels.

The classic, much-used shot, of course, is taken on the armchair with mother sitting down on the cushion, baby in her arms, and daddy half sitting in back on the chair arm, other children kneeling in front or standing behind. The great advantage is that all the heads can be placed at different levels and yet close together and in the same plane. If you are shooting at a wide aperture, getting all subjects equally distant from the camera becomes very important. This arrangement is rather a tired cliché but still very convenient to use in a picture so difficult to arrange, especially since your subjects will be far more interested in handsome faces than original composition.

Avoid the "octopus look" in the armchair; get rid of as many limbs as possible. Have alternate people put their arms behind each other—not embracing but merely placed in back with shoulders overlapping. Dad can have his legs completely hidden, off to the side of the chair, and mother's legs can be hidden by children kneeling or standing in front. If you do see the legs of one adult, have them crossed at the ankles. They will appear slimmer and form a more graceful line. Do not let your subjects sit far back in the chair with legs extended forward. In the case of a grown

Simple expedient of asking child to count veins in tree leaf added candid feeling to this charming portrait; exposure: f/8 at 1/100 sec.

Talking to the baby, above, a favorite family pleasure, is conducive to a candid-type shot. Flash fill-in was used with sun's backlighting. Below, same family threesome, although posed, appear relaxed in surroundings familiar to them (home is in rear).

Here are four ways to

person you will see two big bony knees with a small head in back. If it's a child you will see two big shoe soles with a tiny head on top. Have your subject sit on the edge of the cushion with knees off to one side.

The next most convenient background, after the armchair, is the fireplace, an always popular setting because the hearth symbolizes the home. The mantle and brick work can frame your group placed against the plain, dark central area. Beware of shiny lines and bright blotches from fire screen, andirons, and other brass equipment. They are also apt to appear in the most distracting places—protruding from ears,

pose family groups indoors and out

noses, bald heads, etc. Placing your subjects is a bit more difficult in this shot since they must sit or kneel on the floor. Some adults simply cannot look graceful in this position no matter how you try to tuck their legs away. One solution is to use a foot stool. This has the added advantage of placing your subjects on different levels to avoid the lined-up effect.

Once you have learned to handle your group with these two easiest of settings—the armchair and the fireplace—there's no end to the other possible home backgrounds by which you can vary your pictures. You can take the family around a table, at the (*Continued on page* 122)

Focal point of natural interest here is book. Subjects are seated so that heads are on different levels. Below, beach picnic provides steady flow of picture possibilities. Portrait was taken against light to avoid squinting at sun. Exposure: 1/100 at *f*/16.

Here's what you need to light portrait sitting with mirrors: a photoflood as key light, large mirror taped to stand as fill-in, magnifying mirror (on boom) as spot.

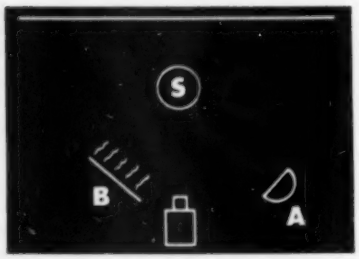
One-lamp portraits

Whatever other difficulties an amateur studio portrait photographer may run into, blown fuses and a hot, uncomfortable subject are all too common ailments when he uses photoflood lamps. Average household electric lines just aren't equipped to handle an additional load of several photofloods at once; the heat problem is universal, although the way each photographer handles it is largely a matter of experience. To circumvent these problems, the beginner might try using just one lamp (the main or "key" light, to set the character of the lighting) plus mirrors of various sizes to reflect this light onto the subject, just as you would add supplementary lights. This protects the fuse box and, of course, the mirrors reflect the lamp's light but not its heat.

The most versatile mirror for this purpose is a 7-in. shaving mirror, available in drug or department stores at relatively low cost. This is two-sided—one a regular flat mirror and the other a concave magnifying mirror. When the magnifying side is used, it will throw a rather narrow, sharp beam of light similar to a spotlight. This is good for highlighting hair (right). Another useful size to work with is a large 12-in. mirror for general fill-in work, when flat even lighting is needed.

The best way to handle the mirrors is to tape them to a light stand; if the glass isn't equipped with a stand-up

Rembrandt lighting—with the main lamp at a 45° angle to the subject, so that a triangular patch of light falls on the opposite cheek—is attractive, and one of the simpler lighting arrangements. Shadow may be too harsh, however (as at far left), requiring addition of fill-in light. Diagram below shows placement of the main light (A) and a 12-in. mirror (B) taped to a light stand. The mirror was placed as close to the camera axis as possible to reflect light evenly on the subject. In the resulting picture (at left), shadows are now "open," portrait improved.

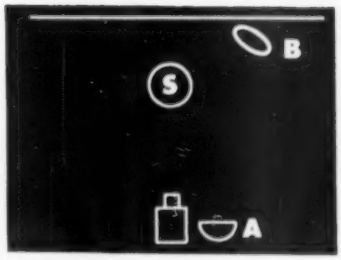


By HENRI BIARTI

A single photoflood does the work of two or three with the aid of ordinary mirrors

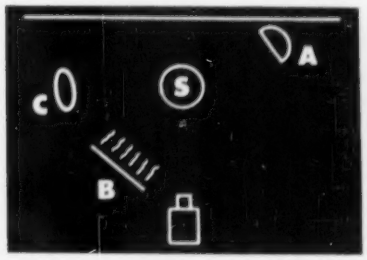
frame, you can make one from a wire coat hanger. Then the apparatus can be raised or lowered, pivoted to any desired position. Just be sure to stay within reflecting range of the lamp.

Since the mirror won't reflect all the light from the lamp, it's best to take a meter reading of the subject once you're all set up, rather than rely on the photoflood guide numbers. If you have no meter, compute exposure for the main-light's distance only.—▶



Flatlighting scheme for the picture directly above consists simply of placing one photoflood lamp close to the camera. The girl's hair needs some highlighting to give it "snap." Solution is to place a small shaving mirror (B) in back and to one side of the subject, as in the diagram at right, using the magnifying side of the mirror. This will produce a narrow, intense beam of light which can be played on any area desired, in the manner of a spotlight. Portrait at upper right gains in appeal with spot on hair.

Rimlighting setup lends itself particularly well to use of additional mirrors in place of lamps. As diagramed below, single photoflood (A) is placed in back and to one side of subject. If this lamp alone is used, as in example at far left, a nice outlining of the profile results—but without detail in the face itself. The large 12-in. mirror (B) is placed opposite photoflood, near camera; this illuminates camera side of subject evenly, without destroying basic profile highlight. Small mirror (C) highlights hair. Finished portrait is at left.



Low shooting angle and good facial expression by Olympic skier Katy Rodolph make this an unusually good shot of the galändesprung, a jump that is accomplished from between ski poles. Photographer waited for peak of action and caught it.

IT ISN'T only the amateurs who have trouble with winter-sports photography. I wonder, for example, how many of the 200-odd press and magazine photographers assigned to the VIIth Winter Olympic Games at Cortina, Italy, this coming winter will get good ski action pictures. If the professionals fail, it is usually because they can't ski and therefore can't be at the right places at the right times to take good pictures. If the amateurs fail, it is usually because they underexpose.

Sun, snow, mountains, thrilling sports —this is an ideal combination for top photography, but a sure bet to befuddle amateurs who make undiscriminating use of their light meters. Under Alpine conditions, any light meter is dazzled by the brilliance of snow and sky. It is possible to get sensible readings from your meter by holding it close to the actual subject of your picture and shutting out extraneous glare. But, by and large, common sense is a better guide than a meter. You can easily avoid flat, washed-out pictures with three simple rules:

1. Expose sensibly. Don't depend solely on a straight meter reading.

2. Use side- or blacklighting to obtain shadow relief and texture; bring these out with filters. Shade your lens.

3. Always shoot in sunlight, never on overcast days if you can help it.

With a medium-speed (ASA 50) pan film such as Plus-X, your average exposure in bright sunlight will be 1/100

Late afternoon sun creates shadows on slopes that give three dimensional feeling of skier making turn on a slope of rugged Mt. Shuksan.

Get set for

winter sports

By FRED SPRINGER-MILLER
Managing Editor, SKI Magazine

Series by the author

Sequence camera allows photographer to get full details of a skier's movement. Best picture can be taken out of a series and used by itself. This series was recorded with a converted Bell & Howell Eyemo motion-picture camera that exposed 32 frames per second at 1/800 sec.

Walt Dyke

Walt Dyke

Backlighted snow thrown up by skier and shooting angle accenting steepness unite to make exciting photograph. →

Harry Rowed

Tiny figures on slope and skier standing in foreground help convey impression of mountain's size.

Mountain climber is silhouetted by side-lighting. For more contrast, translucent ice is used as a frame.

at f/11 (f/8 with a medium-yellow filter). For very dark subjects and shaded scenes, open up a stop; for a snowcape, shut down to f/16. (And all the while, your meter will usually tell you: 1/1000 at f/32!)

The medium-yellow filter is a must for snow photography, particularly at high altitudes where the intense blue light would otherwise wash out the sky in your picture. This filter also brings out the shadows, which are predominantly blue. Keep this filter on your camera at all times; it will serve to protect your lens as well. You'll be wiping snow off it frequently, and it's cheaper to scratch a filter than a lens.

At times (*Continued on page* 156)

In order to get sky between skater and the horizon, camera was placed right on the ice.

Leo-Heinz Hajek

Cloth wings are used by skiers in stunts. Note how dark cloth stands out against snow.

Prefocusing, photographer waited for dog sled team to pass over point of focus, and shot.

E. H. Pierson

Wolfgang Lert

Snow is a natural reflector and provides excellent fill-in light for informal portraits. Here brilliant sun on face is toned down by fill-in light.

Bobsled moving at 60 miles an hour was photographed head-on to insure stopping of action. Photographer used 1/250 sec shutter speed.

The Kodak BULLETIN

f/3.5 & 1/300 for

—and an emergency brake for ultra-fast Kodak Tri-X Film . . . a rut remover for the new fall season . . . what happens to you when you process your first roll of the new high-speed Kodak Ektachrome Film . . . a television adventure coming up . . . and the speediest way yet to mix processing chemicals in your darkroom

Come here quick, world!

Not long ago, we printed this advertisement on the back covers of your photo magazines, showing a young man who

had just found out what a wonderful film the new Kodak Ektachrome is. Now comes a letter from Mr. Gene Simon of Chicago, who did just what we suggested in the ad. Here's what he says:

"Yes, advertising pays!!

"It pays for you, the manufacturer, and for me, the hobbyist.

"Let me explain. The August issue back page advertised home color processing. Now even though I've processed black-and-white for a couple years now, I have always regarded color as out of the question.

"So I read the ad, mulled over it a couple weeks, finally ran out and purchased some 35mm Ektachrome (ASA 32), shot it, and early this week successfully developed and mounted transparencies.

"I'm still amazed, and of course, thrilled."

That's just what we said would happen. To be exact, we said: "Get a roll. Shoot it. Process it. You've got an exciting moment ahead of you—and you'll quickly discover what the shouting is all about. You'll be doing some shouting of your own."

(The film, if your August magazines aren't handy, is the new-type Kodak Ektachrome Film—available now in 620 and 120 rolls as well as 35mm and 828 miniature. Fast, easy to process, and *good*.)

Rut remover

Fall always marks the beginning of a new darkroom season. When the first cold, wet weather comes, you begin to itch to get started making prints from the best of your summer negatives. (You must, because we do.)

We don't know of any better time than this for you to take a fresh approach in your print making. And the freshest way is with new photographic papers—some you haven't tried before.

What we'd like to suggest is that you get a number of different papers and paper surfaces that you've never used or haven't used for a long time. Then experiment with matching different types of pictures with different papers—a firelight scene on a paper with an Old-Ivory tint and a Suede Matte surface; a ma-

rine scene on a good cold-toned paper or one that takes the right shade of blue toning. Not only will it be a lot of fun, you'll learn more about paper and may produce some striking results. Two papers we think you ought to try, if you haven't already, are Kodak Medalist and Kodak Opal Paper.

Kodak Medalist Paper is a wonderful paper to standardize on for most of your work, and you should be familiar with it. It's a paper that's deserving of your best negatives, a rich, full-scale paper with strong blacks, sparkling whites, and a full range of middle tones. It's a flexible-contrast paper that tones well, manipulates well. It has plenty of speed to get a lot of prints out in a hurry, yet gives you time to dodge. Medalist comes in four overlapping grades to give you continuous contrast range from below No. 1 to above No. 4 and in a good range of tints and surfaces.

Kodak Opal Paper gives you an opportunity to do some really distinctive work. A moderate-speed paper that gives you time for careful manipulation, its warm brown-black tone produces striking effects. But the exciting thing about Opal Paper is the broad range of surfaces and tints . . . smooth, fine-grained, silk, tweed, rough, suede and tapestry; in lustre, matte or high lustre on cream-white or old-ivory stock. Beautiful. It comes in one grade only, for normal negatives, and tones very well.

Your Kodak dealer can show you these and other Kodak papers in his sample book. Ask to see them, make your choice, and start off fresh this Fall with new ideas on new papers.

All wet

There was a time when photographers *had* to mix their own chemicals. Some still do and get a lot of satisfaction out of it, too. But most use Kodak Chemical Preparations in powder form, ready to dissolve in water. That's good because these are carefully compounded chemicals based on thoroughly tested formulas . . . you get the same results with every batch.

Some photographers don't even bother mixing powdered chemicals. They use Kodak liquid chemicals which you just dilute with water. Simple as that.

You can get a quart of Kodak Microdol Liquid Developer for $1, and a 16-oz. bottle of Microdol Liquid Replenisher for 75¢. 8 oz. of liquid Kodak

$33.75

Versatol Developer cost 35¢; liquid Kodak Indicator Stop Bath, $1.05 for 16 oz.; Kodak Liquid Hardener, 51¢ for 8 oz.; and Kodak Rapid Liquid Fixer with Hardener, $1.30 for a gallon.

TV adventure

Go ahead and turn the knob on your TV set, but hold on to your hat. This is going to be experimental.

Every top-flight professional movie director has a pet film idea buried deep within his heart. Some day, he tells himself, he's going to *make* that picture . . . put all his skill and experience and enthusiasm into it . . . and show the world what a movie can be.

Kodak has made a deal with the Screen Directors Guild (which includes *every* Academy Award-winning director in Hollywood) to create that kind of opportunity. Top directors will pick their own scripts, cast them, and film them for the new Kodak TV show, "Screen Directors Playhouse."

If you're a movie maker, interested in the fine points of cinema technique and direction, then this should be your opportunity to study movie skill at its best. And even if you're not a movie maker—where could you prospect for fine entertainment with a happier chance for success?

Directors for the first six shows have already been chosen—Leo McCarey, who did "The Awful Truth" and "Going My Way"; John Farrow, of "Wake Island" and "Botany Bay" fame; Frank Borzage, who directed "Seventh Heaven" and "A Farewell to Arms"; George Marshall, known for "The Goldwyn Follies" and "Destry Rides Again"; Stuart Heisler, director of "Beachhead," "Chain Lightning," "Along Came Jones"; and H. C. Potter, guiding genius of "The Time of Your Life," "The Miniver Story," and "Victory Through Air Power."

Plans call for Wednesday evenings, starting early in October. Check your local paper for time and station.

(P.S.—There will be commercials, too, mostly on our simpler cameras. Not for you, maybe; but perhaps it's time your wife or son or daughter had a personal camera. No need to wait for the show; your Kodak dealer can show you a Kodak Duaflex Camera right now.)

Well, why not?

Some folks ask us: "Why doesn't Kodak make a fine miniature camera at an inexpensive price?" "We do," we say, "the Kodak Signet 35 Camera costs only $75." "Sure," they say, "but we want a second camera and are willing to do without the rangefinder and the extra quality of an Ektar lens."

"Then we have just the thing for you," we say, "the Kodak Pony 135 Camera." "Oh, no," they say, "the Pony 135 only has an *f*/4.5 lens and a 1/200 shutter. We want at least a 3.5 lens and a 1/300 shutter." "Look again," we say, "the new Kodak Pony 135, *Model C*, has just that. Here, let us fill you in."

"The Kodak Pony 135, Model C, is new from top to bottom. Most important, it has a faster, shorter focal length lens—a Kodak Anaston Lens, *f*/3.5, 44mm, that focuses to 2½ feet. The shutter is faster too, with speeds up to 1/300 second, and ring setting. The lens barrel is fixed in position ready for action. The knurled film-advance and rewind knobs are smaller and easier to use. The body is a handsome brown with an aluminum-finished finder housing. And the Model C has a carry strap, body release, film-type indicator, depth-of-field scale, tripod socket, automatic metering, exposure counter, no-thread loading."

"Well," they say, "that sounds wonderful, but it must cost at least $60; I might as well get a Signet at $75."

But it doesn't. The Kodak Pony 135, Model C, is only $33.75, and it's at your dealer's now, if he hasn't just sold out. For the photographer who wants a really low-priced fast-lensed camera or a spare miniature for black-and-white work, we think it's a best buy.

Speed limit

Kodak Tri-X Film is so fast we are now selling an emergency brake. It's called the Kodak ND-3 Filter, reduces light transmission by 3 lens stops, and is very handy in bright sunshine when you want to use a large lens opening to "defocus" a background. It's especially useful for movie makers who can't control exposure by juggling shutter speeds but only by varying the lens opening. "ND" means "neutral density"—no color-filtering effect. Prices of the ND-3 are the same as for other Kodak Wratten Filters in standard series sizes.

(For the record, Tri-X now comes in 120, 620, 127, 828, 35mm magazines 36 and 20, and three film-pack sizes. Also 16mm reversal and 16mm negative—neither processed by Kodak.)

▶ For a while, your Kodak dealer will have Kodachrome Film two ways, two prices. One, with processing by Kodak included in the price. The other, *without* processing included—you return the film to your dealer for processing. Same film in both cases—only difference is in the *purchase* price—which is lower, of course, when processing is *not* included.

Prices include Federal Tax and are subject to change without notice.

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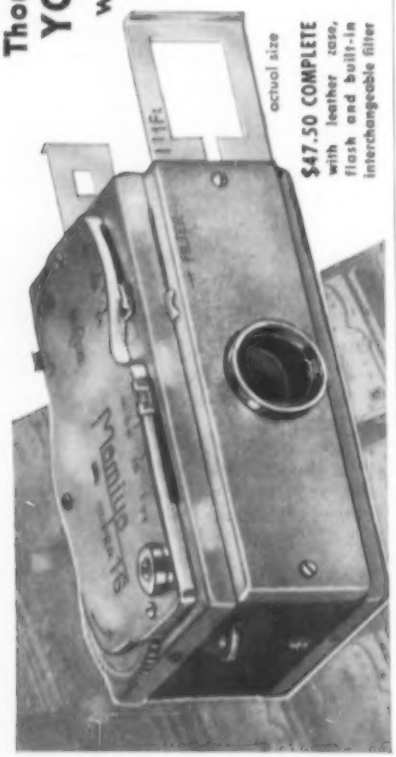

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NEW: KODAK'S COLOR PRINTING PAPERS

THE long-awaited introduction of Kodak's "consumer processed" color-print material took place at the 75th Annual Convention of the Photographers Association of America in Chicago in August. But instead of the much rumored negative-positive material, there were two printing papers announced—Kodak Color Print Material Type C for prints from Ektacolor and Kodacolor negatives, and Kodak Color Print Material Type R for prints from positive Ektachrome and Kodachrome transparencies (as well as other subtractive color transparency materials like Ansco Color and Anscochrome, Gevacolor, Ilford, Ferrania, etc. —ed).

Along with the two new sensitized materials came the respective kits of processing chemicals, a line of new processing equipment components, and a set of filters and electronic parts for the 5x7 Kodak Autofocus Enlarger which provide a semi-automatic means for the worker to judge color balance and print exposure timing with the Type C material.

25-Sheet Packages. Though amateur use of these two new color-print materials is not specifically encouraged, practical considerations do not forbid their use in the well-equipped home darkroom. Both papers are offered in 25-sheet 8x10 packages at $10.15 with 1-gallon kits of processing chemicals priced at $8.15 for the 6-chemical Type C unit and $8.30 for the 7-chemical Type R. (The respective processing times are 45 and 60 minutes.) For general commercial laboratory use, the two color papers are offered in 250-foot, 3½-inch-wide rolls as well as larger paper sizes with processing kits ranging from 3½ gallons up to 25. Probably, the most discouraging factor to amateur use of these materials is Kodak's specification that the unused paper be stored at 50 F or lower, protected from high relative humidity.

Incidentally, these two new color-print materials are not those now used by Kodak in their laboratory color-print services. The latter and their processing chemicals will be released for public sale in the near future. The new products employ less toxic chemicals than those employed in the Kodak color-print services.

Coated on Paper Stock. Unlike all other direct color-print materials of American manufacture, Kodak Color Print Material, Type R, is coated on a paper rather than a white plastic support. Dye staining and other technological difficulties have been solved to permit this new departure. The Type C material, like all other negative-positive print materials, comes on a paper support as well.

When color prints are made from positive color transparencies on Type R paper, a single white-light exposure is employed. Appropriate color-compensating filters are used to balance the spectral characteristics of the printing light to the characteristics of the particular paper emulsion.

For making color prints from Kodak color negatives on Type C paper, either a single suitably filtered white-light exposure can be used or successive integrated exposures through red, green, and blue separation filters are made—the latter being a more precise technique. Separation exposure is facilitated by the Kodak Color Conversion Kit Type C referred to in passing above—an assembly of reading and printing filters, a standard reference lamp, photocell, timers, and related electronic parts.

An interesting feature of the associated processing equipment is the Kodak Processing Basket, which holds 30 sheets of 8x10 paper back-to-back in pairs. It is identical in size to the ordinary developing-hanger rack used in 3½-gallon-capacity developing tanks. The basket is made of woven Saran plastic. In the developing system for the two color-print papers, necessary solution agitation is achieved by releasing inert nitrogen gas in bursts at regular intervals from the bottom of a grid-shaped distributor which rests on the bottom of the developing tank—the Kodak Gas or Water Distributor.

How Good Are the Prints? How good are the results produced on these two new color papers? The display of Type C and Type R prints at the P A of A trade show in Chicago could only give the viewer a rough idea of the relative qualities of the two processes displayed. The Type C prints appeared more varied in color, invested with smoother and more pleasing gradation characteristics and were generally more pleasing to the eye than the Type R results which in turn were quite acceptable. The superiority of Type C was particularly apparent in the face flesh tones. It was also obvious that Type C prints made by the integrated 3-exposure technique were superior to the single-exposure white-light prints on Type C, although the latter were better than the best of the Type R results. The latter is easily understandable since the Kodacolor and Ektacolor negatives from which Type C prints are made have integral dye masks to correct color-transmission shortcomings of the negative dyes as well as contrast abnormalities to a lesser extent.

Are these materials really suitable for use by the fastidious amateur color worker? POPULAR PHOTOGRAPHY is presently investigating this. Look for a comprehensive report on our practical field tests in an early issue of POPULAR PHOTOGRAPHY magazine.—N.C.L.

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Indoor Color Exposure

(Continued from page 82)

This problem is further complicated by the color contrast and tonal values of the subject. As a general rule, then, when setting up lights for indoor color photography it is advisable to establish lower lighting ratios than is normal for black-and-white photography. (Lighting ratio refers to the difference in intensity between the light falling on the brightest areas of the subject and the light falling on the darkest. For example, a lighting ratio of 1 to 3 means that the highlights are getting three times as much light as the shadows.)

If the subject is monochromatic or has only a slight range of color contrast and tonal contrast, lighting ratios as high as 1 to 4 can be used successfully. If the subject has a wide range of color and tonal contrast, flat lighting or at most a 1 to 2 ratio is recommended.

This does not mean that if you exceed the recommended ratios that the portions of the subject outside the range will be entirely devoid of color or detail. It simply means that in these areas tonal and color rendition will not be the most faithful the film can produce. For special pictorial effects high lighting ratios sometimes are used. However, it's a good idea to concentrate on achieving the best possible rendition first and experiment with higher ratios only later on after you've had some experience.

The new high-speed color films Ektachrome E-2 and Anscochrome (at present available only in Daylight Type) have somewhat greater latitude than the previous color films. Negative color films such as Kodacolor and Ektacolor also allow greater leeway since limited corrections can be introduced during developing and printing. However the lighting and subject contrast ratios mentioned above should not be exceeded for best results.

If it is your intention that you have color prints made from your color negatives or transparencies, then a ratio of about 1:2 should be considered the maximum for best results. (For a discussion of this see *Transparencies For Color Prints* in the October issue of POPULAR PHOTOGRAPHY.)

Preparation

One factor for success in indoor color shooting that sometimes is overlooked is preparation for shooting. Natural, relaxed looking pictures can not be expected if you roast your subject under hot lights while you consult charts, tables and your exposure meter. The best procedure is to set up lights at the required distances and do your calculating *before* the subject enters the theater of operations.

Incident-light meters don't require the presence of the subject. Simply hold the meter where the subject's head will be and set your camera according to the reading. Reflected-light readings may be taken from a gray card, such as the gray side of a Kodak Neutral Test Card, held in the subject position. Later when the subject enters the scene, quick supplementary readings can be made to check the accuracy of your first reading.

If you are interested in seeing what the lighting will look like, a plaster head or mannikin such as is available at window display houses may be used. If this is flesh colored the visualization will be even better. (You can also use such a head for test shots, and for lighting practice.)

Another tip is to have all the lights set up and lighted. Then have the subject step into the picture-taking area. This is better than suddenly subjecting the person to be photographed to the heat and glare of lights being switched on.

Lighting contrast ratio

The most accurate way to determine proper lighting ratios is by means of an incident-light exposure meter. The cell of the incident-light reading meter is first pointed at the main light from the subject position, and this reading noted down. Next point the meter at the fill-in light from the subject position. Divide the reading you get from the fill-in light into the reading from the mainlight. The answer is your lighting-contrast ratio. Thus if the mainlight reads 64 and the fill-in light reads 8, then 64 divided by 8 gives 8, or a ratio of 1:8.

If the shadow illumination is too little, producing too high a contrast ratio, then move the fill-in light closer until the proper reading is obtained. If the light is too flat to suit your taste, that is if the shadows are too light, then move the fill-in light away from the subject.

Reflected-light meters may also be used to take lighting-contrast readings. Use a matte card such as a Kodak Neutral Test Card. Point this directly at the light to be read from the subject position, and take a reading directly from the card.

Exposure meters

If used properly both the reflected-light type of exposure meter and the incident-light type give excellent results when used to determine indoor color exposure.

When taking reflected-light readings make sure you are not casting a shadow of the meter on the portion of the subject being read. Hold the meter close to the subject. (How close this should be depends on the particular meter you are using. Consult its instruction book, or check with the manufacturer.)

To insure correct readings with a re-

LIGHTING RATIOS WITHOUT METER

Approximate lighting contrast ratio	*Place 45° mainlight at:	*Place fill-in light at:
1 to 4	6 feet	10 feet
1 to 3	6 feet	8 feet
1 to 2	6 feet	6 feet
1 to 1 (Each lamp at 45°)	6 feet	6 feet

** Use photofloods of identical size, type, and age for mainlight and fill-in light. Place mainlight at 45 degree position, fill-in as close to camera axis as possible without blocking lens. For flat (1 to 1) lighting, place both lamps at 45 degrees, one on each side.*

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Nikon S2 Nikkor f2	268.00	109.50
Nikkon S2 Nikkor f1.4	298.95	162.50
Rectaflex f2 Xenon	350.00	119.95
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Bolsey C22 f3.2 Reflex	99.50	57.50
Kodak Flash Bantam f4.5	56.00	27.00
Kodak Pony 828 f4.5	29.50	14.75
Retina II f2 Xenon		54.50
Kodak Bantam Special f2 Xenon	185.00	77.40
Kodak Town & Country f3.5	75.00	44.50
Minox III/S Chain and case	139.50	79.50
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La Belle 55 Automatic	95.00	49.50
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flected-light meter all lights that are not falling directly on the main portion of the subject should be turned off. Effect lights such as hair lights, background lights, and lamps used for backlighting effects are in this category. If allowed to strike the photocell in the meter, they will make your readings higher than the actual value for the main portion of your subject. This will lead to underexposure.

A favorite method of some photographers for determining correct exposure with a reflected-light meter is to measure various areas of the subject averaging the readings for the lightest and darkest significant portions. This method will give correct exposure to all parts of the subject, provided the lighting ratios recommended above are not exceeded.

If you are most interested in correct exposure of the face, then a single reading for that area usually will suffice. Use of a gray card such as the gray side of a Kodak Neutral Test Card in place of the subject will assure somewhat greater accuracy in recording relative fleshtones. Readings with incident-light exposure meters or reflected-light meters equipped with incident-light reading accessories should be made from the *subject* position. The cell of the meter should be pointed toward the camera lens. The reason for holding the meter at the subject position in indoor color photography, as opposed to taking it from camera position as in outdoor photography, is a matter of the difference in relative distances of the light sources involved in each case.

While a difference of 10 feet plays little difference when the light source (sun) is 40,000,000 miles away, it does make a great difference whether the meter is 5 feet or 10 feet from a photoflood. In indoor photography also, the lights are often in front of the camera, leaving it in relative darkness.

Since the meter is pointed toward the camera lens, background and effect lights usually have no effect on the over-all exposure reading and may be left on. However if an effect light does spill over onto the photocell, then this light should be turned off while taking an exposure reading.

Incident-light meters, and reflected-light meters with incident-light accessories are usually adjusted to give automatically correct exposure to medium bright tones of about 18 percent reflectance. Skin tones usually approximate this amount of reflective ability and will be correctly exposed with one reading taken by the incident-light method.

However if your subject wears very dark or very light clothing, or is in very dark or very light surroundings, then these areas may or may not be correctly exposed also. If this is the case, you will want to supplement your incident-light readings with brightness range measurements.

Determining exposure without a meter

If you don't own an exposure meter you can achieve reasonably accurate exposure by means of the various tables and charts issued by the manufacturers of photolamps and by the color film makers. These tables are usually reasonably accurate and easy to follow.

One set of tables issued by lamp makers uses the "guide number" system for determining correct exposure. (This is similar to the "guide number" method used to calculate flash exposures.) The accompanying table is an example of this. Another type of chart gives actual lamp distances and *f*/stops. Dial-type calculators such as those found in the Kodak Master Photoguide or the Kodaguide Snapshot Dial are also convenient means of determining correct exposure.

Most charts and tables assume that the lamps you use will be in the proper reflectors. A No. 2 Photoflood, for instance, can't be expected to operate at peak efficiency if used in a reflector designed for use with either a No. 1 Photoflood or a No. 4 Photoflood.

The tables also specify average-size rooms with medium-colored walls and ceiling. If you are working in a room

PHOTOFLOOD EXPOSURE WITHOUT A METER

Here's how to use the chart below. First, locate the proper guide number for the type of film and the shutter speed you are using. For example, the guide number for Kodacolor Type A at 1/25 second is 35. Next, to find the *f*-stop for proper exposure, divide the guide number by the lamps-to-subject distance (in feet). Thus, if the lamps are 10 feet away, 35 divided by 10 would give you *f*/3.5. If the required aperture is wider than your lens provides, either use a slower shutter speed or move the lamps closer and recalculate.

Lamp combinations (*Exposures based on flat lighting with all lamps equidistant from subject*)	Shutter speed	FILM: *Ektacolor Type B sheet film	*Ektachrome Type B sheet film	Kodachrome Type A and Ektachrome Type F with 82A filter	Kodacolor and Ektacolor Type A roll film
Two No. 2 Photofloods in reflectors	1 sec	105	120	150	165
or Four No. 1 Photofloods in reflectors	1/5 sec	48	52	68	75
	1/25 sec	21	23	30	35
or Four RFL2 Reflector Photofloods	Movie	20	21	27	30
or Two 375 Medium Beam Floods	1/50 sec	15	17	21	23
	1/100 sec	10	12	15	16

* *Use 81C filter with photofloods and increase exposure by about 1/3 stop.*

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This child study was made on color film by bouncelight, which provides the soft contrasts best suited to this type of subject. Another advantage is the absence of the heat and glare incident to other lighting. Made with a 35-mm camera, using four 375-watt reflector floods.

with white walls and ceiling an exposure of ½ to 1 stop less than those indicated may often suffice. If working in a large room such as a hall or auditorium, or in one with dark-colored walls and ceilings 1 or 2 extra stops may be required.

When using exposure tables or dial calculators, remember to measure the lamp-to-subject distance accurately. Use a tape measure and measure from the lamp itself, not from some portion of the lamp stand or reflector.

Another thing to remember when moving lights around is that light varies as to the square of the distance. Thus if you move a lamp 6 feet from the subject instead of 3 feet, you don't get ½ the light. You get ¼ the light. Similarly moving the light 3 times as far away will give you 1/9 the light; 4 times as far away 1/16 the light, and so on.

Bounce light

A type of lighting that is enjoying increasing popularity is indirect or bouncelight. In this type of lighting, instead of pointing the lamps directly at the subject, they are directed instead at large reflecting surfaces such as light-colored walls and ceilings. This generally gives soft lighting with relatively low lighting contrast desirable in color photography.

Bouncelighting will generally require considerably longer exposure than when working with direct light. This is due to light absorption by walls and ceiling, because of the extra distance the light has to travel, and because it is more scattered when it reaches the subject. The exact exposure is best determined with an exposure meter. Without a meter try increasing exposure about 2½ stops more than normal and bracket this exposure.

However, in formal or posed portraiture you will not find the extra exposure required too much of a stumbling block. In this type of work the absence of heat and glare from direct light will permit the subject to remain at ease and allow you to catch expressions at the slower shutter speeds necessary.

One caution when using bouncelight. Make sure walls and ceilings are white or neutral in color. Light bounced from colored walls or ceiling will of course impart that color to the subject. For example, a pink wall will impart a pink cast to your color shots.

If you must work in rooms with colored walls try bouncing your light off large white sheets hung over the wall or from large sheets of white paper, such as Savage Background Paper.

Backgrounds

Very often the color photographer becomes so absorbed in getting the correct lighting and subject contrast that he completely neglects the lighting of his background. In most cases the background receives too little light and is rendered quite different from the way the eye sees it. It can be quite disconcerting to pose a beautiful redhead against what appears to be just the right shade of blue background and then have that background appear as a dark shade of muddy purple in the finished picture.

To assure correct rendition of the background, light it separately. Keep the subject some distance away from the background to allow placement of a background light.

A reflected light reading should be taken of that part of the background that will be included behind the subject. This reading should not be higher than the brightest area of the subject, nor darker than the darkest part of the subject within the recommended lighting ratio, if correct color rendition is desired.

In choosing background material get

the lighter shades of a particular color. You can always make a background appear darker in the finished picture by keeping light off it. However it is often difficult with average amateur lighting equipment to pour enough light on a dark background to make it as bright as wanted.

Reciprocity failure

When color materials are given exposures that are substantially longer or shorter than those for which they were designed, the color rendition may depart a bit from "normal." Extra long exposures are sometimes encountered when using a long bellows extension or extension tubes for close-up photography, or for time exposures in night photography. Extra-short exposures may be encountered when shooting flash shots at very high shutter speeds.

Generally speaking you will not find the amount of color shift you get from extra long or short exposure objectionable in ordinary work. However, if you need highest possible color fidelity for some special purpose then contact the film maker for filter recommendations. When doing this give him the emulsion number of the film you are using, exposure time you are going to use, light source, camera equipment and all other pertinent data.

Equipment errors

In general, the exposure settings you get from the various tables, dial calculators, or properly used exposure meters usually can be relied upon to make satisfactory color transparencies for you. Occasionally, however, you may find that your pictures come out consistently too dark, or too light. Pictures that are consistently too dark may be due to the fact that the shutter in your particular camera operates at speeds somewhat faster than those marked. Pictures that are consistently too light may be due to a shutter operating at speeds slower than those marked.

Don't construe this to mean that your shutter is out of order, or that it is a poor one. Shutter makers try to give you the best possible accuracy, consistent with reasonable cost. Shutter speeds may change with wear on the shutter. Climatic conditions peculiar to a certain area can also affect shutter speeds. Thus in the cold climate of Alaska speeds may be slower than marked, whereas in the tropics your shutter may speed up. In addition to the factors just mentioned, two different shutter manufacturers may use somewhat different standards in marking shutter speeds.

Pictures that are consistently too dark may also be due to a lens covered with dirt or scratches. Peak light transmission shouldn't be expected from such a lens. Dirt can be removed from your lens using one of the special lens-cleaning fluids such as Kodak, Edwal, or Wollensak Lens Cleaner and special lens tissue. Dust on a lens should be blown off or brushed off gently with a soft camel's hair brush. Brushes such as the Alpha Ray or Static Master, which have a strip of radioactive material are especially good dust chasers.

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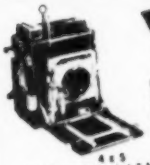
50mm Elmar, ctd. f/3.5	60.00	57.00
50mm Summarit, f1.5	180.00	177.00
50mm Summicron f2	159.00	156.00
85mm Summarex, f/1.5, Chrome		360.00
90mm Elmar f/4, Chrome	93.00	90.00
90mm Elmar f/4, Collaps. mt.	150.00	
125mm Hektor, f/2.5		147.00
135mm Hektor, Chrm., f/4.5	141.00	135.00
135mm Hektor sht. mtd.	121.50	120.00
Leica Meter	30.00	17.50
200mm Telyt f/4.5		156.00
400mm Telyt, f/5		450.00
Leica reflex housing		102.00
Leica Flash Gun		24.00
Leica Chico Rashgun	19.50	18.00
Stereo Outfit for Leica	297.00	294.00
Focomat Ic Enlarger w/o lens		$147.00
Valoy II Enlarger w/o lens		95.00



BROOKS 1st for Press

1955 SPEED GRAPHIC

Brand new features of the 1955 Speed Graphic include Graphic coupled rangefinder with built-in Rangelite and automatic parallax-correcting optical viewfinder.

4 x 5	Crown Graphic	Speed Graphic
w/135mm Optar f/4.7 MX 1/400	287.45	331.45
w/135mm Tessar f/4.5, MX	245.00	289.00
w/127mm Ektar f/4.7 MX	269.45	313.45
w/150mm Tessar, f/3.5, Sync	295.00	339.00
w/150mm Xenar f/4.5 MX 1/400	249.50	294.50
w/152mm Ektar f/4.5 X sync. 1/200	293.45	347.45

4 x 5 w/135mm Xenar f/4.7 MX 1/400 Range Finder	$209.95 / $249.50
2¼ x 2¼ w/105mm Color Scopar f/3.5 Kalart R.F. w/1/400 of sec. MX sync	$199.50 / $229.50

w/101mm Ektar f/4.5 MX 1/600	297.55	338.05
w/105mm Tessar, f/3.5, MX	245.00	280.00
w/101 Optar f/4.5 MX 1/400	279.85	318.35

BRAND NEW PRESS CAMERA ACCESSORIES

	Regular	Special
4 x 5 Lisco Holders	4.25	2.99
23 Roll Film Holder for 2¼ x 3¼	21.75	17.20
23 Graflmatic Film Holder for 2¼ x 3¼	17.95	14.40
23 or 22 Roll Holder for 4 x 5	23.95	19.20
45 Graflmatic Film Holder for 4 x 5	24.95	19.95
Graflarger Stand	19.95	16.95
Graflarger up to 4 x 5	39.50	31.00

NEW—DISCONTINUED 1954 MODELS

	Reg.	NOW
New VX Exakta w/f/2.8 Preset Tessar		$169.00
New VX Exakta with f/3.5 Tessar lens		149.00
Praktica FX f/1.9 preset Primoplan	$159.50	$ 78.95
Flexaret Synch. f/3.5	99.50	48.95
Ditto Camera f/3.5	99.50	48.00
Ditto Case	8.95	5.95
105mm Ditto Telephoto	39.50	29.95
Bolsey B2 f/3.2 lens	56.50	39.95
Bolsey B22 Setamatic f/3.2 lens	69.50	44.95
Bolsey C reflex f/3.2 lens	89.50	48.50
Contax IIA f/2 X. synch.	336.00	228.00
Contax IIIA f/1.5 X. synch.	412.00	298.00
Super Ikonta A f/3.5 Tessar X. synch.	99.00	69.00
Super Ikonta B f/2.8 Tessar X. synch.	139.00	99.00
Nikon 1954 model, w/f/1.4 Nikkor	299.50	189.00
Exakta penta prism w/rf	85.00	38.95
Robot Star f/1.9 lens	249.00	100.00

SAMPLES FROM OUR USED CAMERA DEPT.

Bolex H-16, 3 ctd. lenses	$229.00
Cine Special, 4 lens turret, 1" f/1.9	595.00
Contax IIa f/2 Sonnar	167.00
Linhof 23, 3 lenses	338.00
Rolleicord V, f/3.5, MX	99.50
Medalist I, f/3.5	59.00
Medalist II, f/3.5, flash sync	109.00

Many others—write for complete list.

CONTAX D

Contax D w/f/2.8 preset Tessar	$94.95
Eveready case	$ 12.00
Contax D w/f/2 preset Zeiss	$124.95
Macro-Kilar 40mm Model D, foc. infinity to 2"	$114.95
Model E, same as above, inf. to 4"	$29.95
135mm Albinar f/4.5	

PRAKTICA

Praktica FX f/1.9 preset Meyer	$78.95
Praktica FX f/2.8 preset Tessar	$78.95
Case	8.95

VISTASCOPE

Now Cinemascope wide-screen 8mm and 16mm movies in your own home. Same lens goes on camera and projector. Takes and projects 50% wider pictures, saves 50% on film costs. Uses standard screen, film, exposure processing methods. Superb definition, clarity. No close-up distortion.

8mm	$ 75.00
16-35mm	125.00

REVERE 888

Fully auto 500-watt slide projector with more wanted features than any other on the market. Changes slides automatically, fast, medium or slow speeds, built-in pointer, iris fade lever, fast f/3.5 lens. Many other features $119.50

REVERE 555—Auto mag 2 x 2 500-w $79.50

REVERE 553—Same features "555" 300-w $69.50

CONTAFLEX I

35mm single lens reflex camera, fully automatic preset aperture when shutter releases. Zeiss Tessar f/2.8, speeds to 1/500 sec. and bulb. Double exp. prevention. Split image coupled rf. $189.50

Contaflex II same as I plus built-in ASA exp. meter $199.00

1955 ROLLEIFLEX AND ROLLEICORD

With new coupled shutter diaphragm

w/Tessar f/3.5 lens	$237.50
w/Xenar f/3.5 lens	217.50
Rolleiflex w/Schneider Xenotar f/2.8 lens or w/Zeiss Planar lens f/2.8	$291.50
Rolleicord V w/Xenar f/3.5 lens, full synch. light value	$134.50
Case for 2 BC	18.00
Case for 3.5	17.00
Rolei Flash Gun	29.95
Rolei Exchange New Camera with light values for your camera MX	$27.50

NEW ARRIFLEX 16

The only 16mm camera providing through-the-lens focusing and viewing during exposure, electric motor drive. Matte box, cables $1650.00

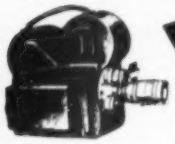
11.5 Xenogon W/A, f/1.9	$290.00
16mm Xenon f/1.9 lens	170.00
25mm Xenon f/1.5 lens	170.00
50mm Xenon f/2	175.00
75mm Xenon f/2 lens	200.00
Zoomar 1" to 3" f/2.8	579.00
Battery	45.00
400' mag.	140.00
Arriflex 35mm Basic Camera	$1675.00

MAGNASYNC

Recorder 400X	$895.00
Magnasync Mixer	375.00
Magnasync Speaker	97.50

BOLEX H-16 SUPREME

Bolex H-8 Leader with Lytar coated f/1.9 lens	$259.50
Bolex H-8 De Luxe with Switar coated f/1.5 lens	$438.25
Bolex H-16 Leader with Lytar coated f/1.9 lens	$269.50
Bolex H-16 Supreme w/Lytar coated f/1.9 lens	$394.00
Bolex H-16 Supreme w/Switar coated f/1.4 lens	$510.00
Bolex H-16 Supreme with Switar coated 3/1.4 lens, Switar 16mm coated f/1.8 lens, Switar 50mm coated f/1.4 lens and deluxe H-J case complete	$779.00
Bolex C-8 w/Lytar ctd. f/2.5 lens	$ 89.95
Bolex C-8 w/Lytar ctd. f/1.9 lens	129.95
Bolex B-8 w/Yvar ctd. f/2.8 lens	119.50
Bolex B-8 w/Lytar ctd. f/1.9 lens	149.50
Bolex B-8 w/Switar ctd. f/1.5 lens and Yvar 1½" (telephoto ctd. f/2.8 lens)	$274.50
Bolex Electric Camera Drive	89.50
Bolex Tripod	69.50
Bolex Titler and Special Effects Kit	299.50
Bolex Rockover	27.50
Bolex M-8 Projector with case	169.50
Bolex G-8mm-16mm Projector	339.50
Pan Cinor Zoom coated f/2.8 lens (for 8mm)	$219.50
Pan Cinor Zoom coated f/2.8 lens (for 16mm)	$349.50
Pan Cinor w/case 17½ to 70mm thru lens view	$449.50
Switar 16mm f/1.8 w/a	99.50
Switar 50mm f/1.4	169.00



16mm CINE-VOICE

BROOKS 1st for AURICON

AURICON CINE-VOICE

popular-priced 16mm camera that photographs a sound track, perfectly lip synchronized with the picture — to be played on any 16mm sound projector. Single-lens model. New $695.00

Used $325.00

AURICON PRO. 200 comp. w/amp. used $1095.00

AURICON PRO-600

16mm optical-sound-on-film; self blimped; sync motor drive for single or double-system recording; Electromatic take-up, film-flow without friction clutches or belts. Various combinations of accessories available $1165.00

AURICON "SUPER-1200"

16mm sound-on-film camera (self blimped) with 3-lens turret for "C" mount lenses. 1200 ft. capacity for 33 minute recording time $3319.25

AURICON PAN-TILT professional tripod, weight 27 lbs. $325.00

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☐ Mail me tentative allowance.

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Your trade-in may be used as down payment! It will be returned at our expense if you don't accept our top offer.

☐ Send FREE literature on _____

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☐ Professional Movie List.

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35mm x 27½' ..... $8.95 35mm x 100' $16.95
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VARIGAM DuPont's Most Popular Paper 100 Sheets ... **$2.98**
10 x 10 Enlarging Paper Single Weight, S. M. 250 Sheets ... $7.00
(Shp. wgt.—100 Sheets—4 lbs. 250 Sheets—9 lbs.)

K-20 AERIAL CAMERA
With 6⅝" f4.5 lens. Perfect for rapid-sequence action. Makes 4x5 negative. Hand held. Lightweight. Shutter speeds to 1/500 sec. Fully Guaranteed. **$149.50** (Wgt.—25 lbs.)
FREE—6 Rolls 5¼"x20' Super XX Film

HI-SPEED Kodak Daylight EKTACHROME
27½' Roll (Makes 8-20 exp. cartridges) $3.95
37½' Roll $4.95 . . . 75' Roll $8.95
(Shp. wgt.—27½' or 37½'—8 oz.; 75'—1 lb.)
5¼" x 40' roll. (Shp. wgt.—3 lbs.) $4.95
Ektachrome Kits (1½ Gal. Developing Kit) 1.95
For home processing (4½ Gal. Developing Kit) 2.95
(Shp. wgt. 1½ gal.—5 lbs. 4½ gal.—12 lbs.)
FREE BONUS! With any order of this bulk color film you receive free filter. Please specify filter size.

GUARANTEED to 1956 • SAFETY • PLUS X • SUPER XX • INFRA-RED • ANSCO SUPREME • BACKGROUND X
35mm x 100' ROLL . . . $1.98 ea.
Save Even More! . . . . . 3 Rolls $4.50
(Shp. wgt.—1 lb. per roll)

35mm Bulk Film Loader, plus 12 empty E. K. cartridges $5.50. With 100' Roll Dupont No. 2 (ASA 50) $6.50 (Shp. wgt. 2 lbs.)

FRESH KODAK TRI-X FILM
The new Hi-Speed ASA 200—800 Film Everyone Wants. Dated 1956.
35mm x 100' **$3.25**
(Shp. wgt.—1 lb. per 100') 3 Rolls—$9.00
35mm x 20 exposure cartridges, Fresh Dated. (Shp. wgt.—2 lbs.) 12 for **$4.50**

E. K. Fine Grain Positive '55 Date. Make your own B-W transparencies! 100' roll $1.40 ..... 3 rolls $4.00
(Shp. wgts.—100 ft. roll 1 lb. each, 400 ft. 3 lbs.)

16mm KODACHROME 16mm x 100' Daylight Roll. Perfect Quality. We scooped the field on this terrific value! FREE Kodak Processing.
1 Roll (1 lb.) **$6.95** 3 Rolls (3 lbs.) **$20.00**

16mm x 100' KODAK SUPER X MOVIE FILM . . . FREE PROCESSING INCLUDED ..... each **$2.98**
NEW LOW PRICE! **$10.95**
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Above Film Without Processing—$1.19 ea.; 6—$5.98

750 Watt Projector Bulbs—G. E. or Westinghouse ..... ea. $2.19
(Shpg. wgt.—1 lb. ea.; 3—2 lbs.) 3 for $5.98

√ √ 16mm x 50' Super X √ √
12 rolls—$4.95 28 roll can—$8.95. 3 cans—$17.00
(12 rolls 3 lbs.—1 can 5 lbs.)
Empty Magazines. 99¢ ea. ..... 12 for $4.00
(1 lb. ea. 12—7 lbs.)
E. K. SUPER X 16mm x 50' MAGS. Free Processing. (Wgt. 1 lb. each) ..... $3.39 each; 2 for $4.50

CUT FILM AND FILM PACKS
2¼ x 3¼ Plus X and Super XX Film Packs—89¢ ea. 5—$3.95; 10—$7.50
(Shp. wgt.—6 oz. ea.)

4x5 Cut Film—Ansco Triple S Pan (ASA 200), Ansco Isopan (ASA 50), and EK. Gritho X (ASA 125). New Low Prices!
3—25 sheet boxes $3.50; 6 boxes $9.98
(3 boxes 2 lbs.—6 boxes 4 lbs.)
★ 4 x 5 Ansco Color — Indoor — 12 sheets $2.75
24 sheets 5.00
FREE! Daylight Conversion Filter with above purchase.
8 x 10 Ansco Color—Daylight or Tungsten—
(Shp. wgt.—2 lbs.) 10 sheets pkg. . $5.95

ENLARGING PAPER
Haloid 10" x 10" D.W. Semi-Mat., No. 2, 100 sheet package ..... $3.95 ea.; 2—$7.50
(Shp. wgt.—5 lbs. ea.)
8 x 10 E. K. Kodabromide Single Wgt., Glossy F4—100 sheets $1.98 500 sheets . . $4.95
(4 lbs. and 10 lbs.)
10 x 10 S. W. Glossy, CONTRAST 2—Excellent Quality. (5 lbs.) 100 sheet box $2.98
7x8 ⅝ EK. Royal Bromide F2 SW glossy 100 sheet box ..... $1.79; 3 boxes $5.00
(Shp. wgt.—3 lbs. and 8 lbs.)
8 x 7 Halobrome—S.W. Glossy, F 3 ..... 100 Sheets $1.49
(Shp. wgt.—2 lbs. & 5 lbs.) 300 Sheets $4.00

AERIAL FILM Cut Your Own Sheet Film For Pennies!
5¼" x 50' E. K. Tri X (Weston 200) ..... ea. $1.95
(Shp. wgt. 3 lbs ea., 3—8 lbs.) ..... 3 for 5.90
9½" x 200' E. K. Super XX (10 lbs.) 7.50
9½" x 200' E. K. Tri X '54 date 10.95
(Quantity Prices on Request)
Be sure to include postage. All C.O.D.'s 30% DEPOSIT. Items not marked fresh are past date but fully guaranteed.

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FREESTYLE SALES CO.
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If your lens is badly scratched return it to the manufacturer for polishing. If this is not convenient consult your camera-repair service.

If dirt is lodged between lens elements let the lens maker or a competent optical or camera-repair service disassemble and reassemble your lens for you.

Lenses of different construction may also vary considerably in the amount of light they transmit. This, of course, has its part in determining how dark or light your transparencies will be.

Thus, an *f*/4.5 coated four-element lens would probably transmit more light than an *f*/1.5 seven-element uncoated lens stopped down to *f*/4.5. In the *f*/1.5 lens the extra elements would, of course, absorb extra light. The fact that it was uncoated would lead to light loss from internal reflections. Other features of lens construction, such as type of glass used, efficiency of coating, and polish all have effects on lens transmission performance.

If your transparencies come out consistently too dark give more exposure than indicated by charts, tables, or your meter. If too light give less exposure.

To determine your personal exposure factor try shooting the same subject at the "normal" exposure. Also make two extra shots, one at ½ stop over and one at ½ stop under the "normal" exposure. If all the underexposures come out well, then you have a slow shutter. Conversely if all the overexposures come out well then your shutter is fast.

When using an exposure meter do as above but make one series of test shots at an exposure index 50 percent greater and one at an exposure index rating 50 percent smaller than the regular index. The exposure index that gives you the best slides consistently is your "personal exposure index" for that film, camera, and lens combination.

General remarks

To insure the best color rendition that your film is capable of make sure that power lines are not overloaded. A drop in voltage can make your floods burn appreciably yellower than normal. The eye might not notice this small color change. However, the film will pick it up and your transparencies will be too reddish. If you are doing critical work a voltmeter and some sort of voltage control such as the Variac or Color Tran Converter may be necessary.

As photoflood lamps become older the light output becomes redder. At the end of their life the light is decidedly reddish. For best results keep an accurate check on the actual time each lamp is used. After a lamp has burned for half its life discard it for color work. Older lamps can be used up for black and white or to illuminate those parts of a scene where color fidelity is relatively unimportant—backgrounds, etc.

To insure adequate voltage for each lamp make sure to limit photofloods to three No. 2, RFL2, RSP2 or three 500-watt 3200 K lamps on one fuse of 15 amps.; or six No. 1 floods, four 375 medium-beam spots, or one No. 2 and one No. 4 flood. Makes sure household appliances such as irons, washers, TV sets are either off or on another fuse circuit when using photoflood lamps to shoot color pictures indoors.—▶

New Look in Yearbooks

(*Continued from page* 81)

temperature regulator to keep the tap water at 68 degrees.

Each of the staff members had his own equipment and most of the pictures were made with Rolleis or Leicas. All negatives were contact-printed on 8x10 enlarging paper and the pictures to be used were chosen from these contact sheets.

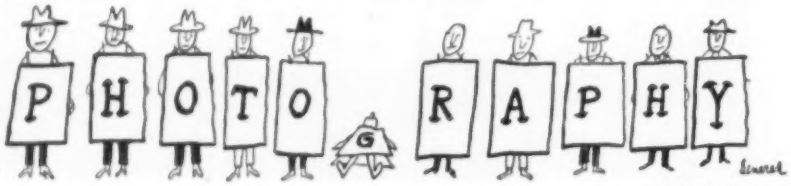
As Photography Editor, I discussed each picture assignment with the editor-in-chief, Margy Boyd, and then chose a photographer with the most feeling for the subject at hand. In talking over the assignment with the photographer, as much room as possible was left to his imagination. This freedom helps in getting many fine and unusual pictures.

For large housing units, the row line-up for group pictures was unavoidable. These routine groups were taken by the professional photographic section of Audio-Visual, a division of Indiana's School of Education. In the smaller group shots of clubs and organizations we usually used a more informal approach, having the members seated casually around a table or engaged in some activity.

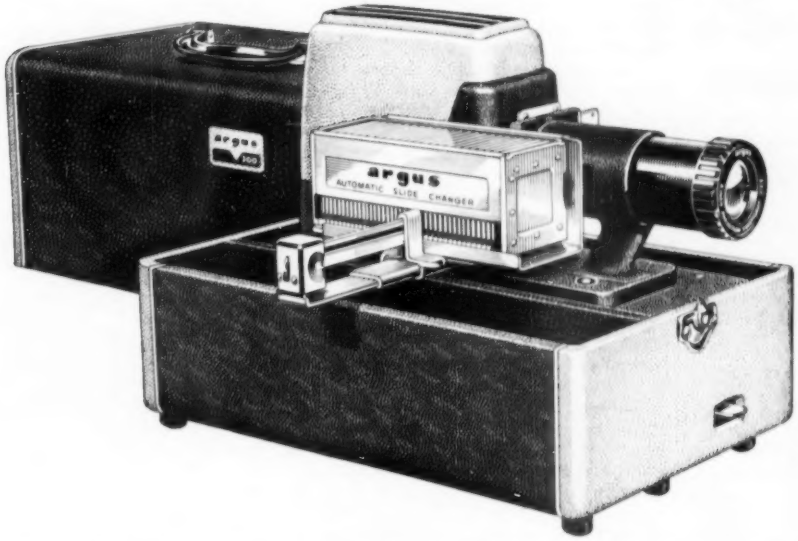
The *Arbutus* photo staff consisted of four photographers, Hartley Allen, Bob Johnson, Jack Welpott, and myself, and most of the pictures were taken by the staff. Occasionally, in the rush of meeting a signature deadline, it was necessary to have Audio-Visual cover a campus event.

The *Arbutus* is essentially a student publication, and its editorial and photographic policies are determined by the student staff. It does, however, have a fine staff of faculty advisers, each adviser a specialist in his field. Key staff members for the book are chosen by a board of publications, a group made up of both students and faculty.

The week after the distribution of the book, we were all a little on edge. The campus daily ran a page-one story commenting very favorably on the photography. This opinion was confirmed many times by individual students who went out of their way to tell us how well they liked the book.—▶



Protects your precious color slides from "dog-earing," dirt, heat, finger-smudging!



$66.50 complete

New argus automatic 300 watt projector

Treasured color slides that preserve precious memories for you *deserve* to be treated with extraordinary care. And that's the kind they get from the new Argus Automatic. It encloses each slide in an individual protective aluminum frame that locks out dog-earing, dirt, and finger-smudge damage forever.

And once you've loaded the individual slides into the magazine, you need never again touch them. A simple push-pull of the lever shows, changes, and safely stores them—automatically. During the longest show a powerful, built-in blower and special heat-absorbing condenser lens protects slides from heat, keeps them constantly cool.

The brilliance of the 300-watt picture is screen-wide, with no washed-out corners or spots. The full-focusing, wide-angle f:3.5 lens gives a big picture even in close quarters. Carrying case holds enough magazines for a two-hour show. Including projector, case, automatic changer, and one 36-slide magazine—$66.50.

argus C-3 $66.50

Features the Cintar f:3.5 lens, shutter speeds to 1/300, lens-coupled range-finder, plug-in flashgun. Interchangeable telephoto and wide-angle lenses make it extra-versatile. With case and flash, only $66.50. (Extra lenses, $49.50 each.)

argus C-4 $84.50

America's most distinguished 35 mm. camera has a Cintar f:2.8 lens—gets the picture even in dim light! Range-finder and viewfinder combined in one window, lets you focus as you compose. Flashgun locks on camera. Only $84.50. Carrying case, $7.50. Flash, $7.50.

New argus *"instant-reading"* light meter $16.95

Instantly and without figuring, provides direct setting data for incident and reflected light. Just set film speed and read—the correct f:stop from f:1.4 to f:22, the shutter speed from 1/1000 second to 2 minutes. Includes leather case, only *$16.95.*

Argus Super-Sensitive booster attachment for a super-accurate reading in dim light. Plugs into Argus Light Meter. With leather case, only *$7.95.*

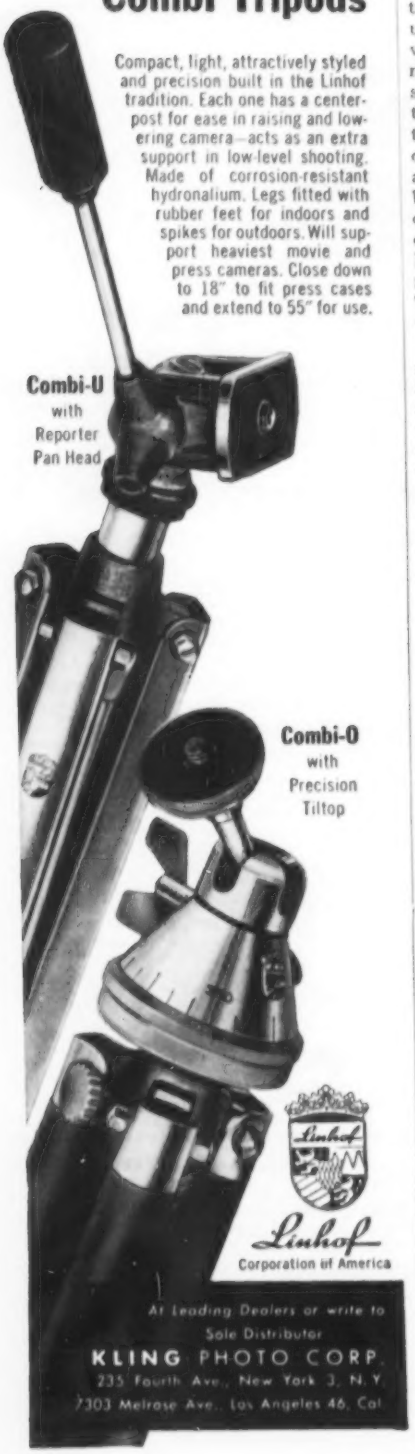
argus

Manufacturers of precision photographic and optical instruments

Argus Cameras, Inc., Ann Arbor, Michigan (Canadian address—Toronto 1, Ontario) All prices subject to change without notice.

2 NEW Linhof Combi Tripods

Compact, light, attractively styled and precision built in the Linhof tradition. Each one has a center-post for ease in raising and lowering camera—acts as an extra support in low-level shooting. Made of corrosion-resistant hydronalium. Legs fitted with rubber feet for indoors and spikes for outdoors. Will support heaviest movie and press cameras. Close down to 18" to fit press cases and extend to 55" for use.



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Family Portraits (*Continued from page* 101)

piano, gathered around a child's crib, in a doorway, outdoors in the car, in front of the house, under a tree, and many other places, just as long as you bear in mind that you want to keep the area framing the heads free as possible from background clutter.

You can also vary your pictures and at the same time dramatize them by making use of natural sources of light such as windows and lamps. Window light that is not direct sunlight gives a beautiful soft, sculptured effect to your subjects, making them seem three dimensional. Be sure to fill in the shadow side with flood light or a sheet reflector. Lamp light also gives a three-dimensional effect but is apt to be harsh and glaring. You may have difficulty pleasing your women subjects even when filling in with floods. Such light, however, is very dramatic and makes your shot pictorially interesting. Try it for more candid-type portraits or when just children are involved.

Another way to add interest to your group portrait is to shoot in depth: have some subjects close to the camera and some far away. The contrast of large and small figures has striking eye appeal and can be used to dramatize one or two members of the family on birthdays, graduations, weddings, etc. Naturally in this shot you run across the problem of depth of field and must shoot at a slow shutter speed with a small aperture. If your subjects include lively and restless children, you may not be able to stop their motion.

Another use of the deep-field shot in group portraits is outdoors with the home in the background and your group close to the camera. Millions of snapshots are taken with people standing near their homes so you see just a window frame or a porch stoop, or if you see the whole house, the figures are tiny and in the background. Try framing the house in the viewer and at the same time show your group close by in the foreground (within 15 feet). This shot is quite easy to take because the light outdoors is bright enough to stop down yet shoot at a relatively fast shutter speed, say *f*/16 or 22 at 1/50 second. Focus just slightly beyond the distance at which your group is placed. Do not focus on the house; it's better to have the house slightly unsharp rather than your human subjects.

Now that we have the setting and the group composed, let's consider the next very important factor in group portraiture: how to make everyone have a pleasant facial expression at the same time. In the first place do not be so overly ambitious about achieving perfection that you worry about your subjects. Your picture at best will probably be only a compromise, the one in which no one looks really bad. Usually each of your best shots will be ruined by somebody scowling, a baby wiggling, or some youngster looking bored. Your chances will be much better if you relax and act congenially. Your mood will be contagious and help get better expressions from your subjects.

I say act relaxed, but that does not mean to work slowly. You've only got about ten minutes before your subjects will be too restless or bored to be photographed. This means, of course, you should have your lights all set up and camera ready *before* you place your subjects.

Do not worry too much about the baby of the family; it will probably be the mother who will ruin your picture. Don't try to duplicate that adorable shot you captured when you photographed the infant alone in the bassinet. Babies are cute enough no matter what their expression, and they seldom ruin a photograph. If you have a big group and you keep them waiting while you try to work on the infant, sure as you click the shutter some adult or older child will ruin the shot by looking tense, bored, or by smirking.

And do not let the parents worry about how the baby looks, either. For that matter do not let them worry about any of the children. They will naturally have a tendency to want to help you manage their offspring. This will either make them look cross from scolding or silly from trying to make the children laugh.

To get everyone in a pleasant frame of mind, the ideal is to have a congenial uncle, grandparent, or neighbor who is able to talk to the family about some topic of mutual interest, who is able to tell jokes or make up simple stories. This will focus attention in one direction, and everyone will have an interested look on his or her face. Remember, you cannot *tell* your subjects how to look; the expression must come spontaneously.

If you find yourself stumped and there is no extra person handy to put your group at ease, have the family *do* something together first. This will arouse their interest and bring animation to their faces. The easiest thing to have them do is read together. Almost any child can be intrigued for a minute or so in a picture book. Another method is getting everyone to sing together. This is especially good for producing lively facial expressions. Merely talking together also works. One of my most successful tricks is to have one member of the family say what animal another member of the family reminds him of. If a little five-year-old tells his daddy that he looks like a dancing rhinoceros, it's pretty hard for the rest of the family to look bored.

While the family is in action, click the shutter. In all probability it will be your best picture. Most people, however, like to see full faces, so when everyone is laughing or intrigued with some project, ask them all to look up at you. If you shoot right away, they won't have time to put on their frozen masks.

The suggestions I have been making to help get a good family group shot would apply no matter what camera was used, from a Brownie flash to an 8x10 view. Personally I prefer using a 35-mm. You cannot do any retouching but I believe this drawback is relatively minor compared to the advantages of being able to shoot many negatives rapidly and having the greater depth of field and faster lens

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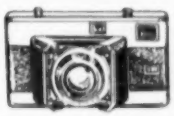

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of the miniature. I find it is very good insurance to shoot many negatives since you cannot be watching every individual face when you snap the shutter.

Indoors I usually shoot at about 1/25 second at *f*/5.6, using a Leica on a tripod and two or three photofloods; *f*/5.6 or perhaps *f*/4 is about the widest you can open the lens and still be sure all your subjects are in focus.

There is no one formula for placing your lights. Each case must be set up differently according to how your group is arranged. There are some general rules which you should remember, however: (1) Have the light distributed evenly over the whole group. Watch out for a side light that is too close to half the faces. (2) Don't have ugly cross shadows on the wall behind. Keep your lights high and aim them down. (3) Be sure to fill in the shadow area of window-lighted and lamp-lighted shots.

One trick I use to soften my lighting is to aim the reflectors half on the ceiling with some spill going onto the group. This creates a soft, almost indirect lighting effect. If you have some of your subjects on the floor, however, you must use an auxiliary light somewhere low, otherwise your higher subjects will be more brightly lighted than those below.—

How to Shoot Yourself

(*Continued from page* 90)

learn portraiture—and the best photographers are always in the learning stage.

The simplest way to take a self-portrait is to photograph your mirror reflection. The camera, of course, is usually included in the picture. If you focus by use of a distance scale, remember that your distance is from the camera to mirror plus mirror back to subject. You can correct the reversed image by enlarging with the negative emulsion uppermost in the negative carrier, or contact printing through the back of the film.

The delayed action release finds its greatest use in pictures in which the self-portrait is of an incidental nature, for example, in group photographs in which the photographer wants to be among those included, and in landscape photography. Landscapes often benefit by the addition of a figure, and the cameraman may be the only model available. If your shutter incorporates no delayed-action release, a separate delayed-action release is one of the most useful gadgets. Some screw into the cable-release socket, others are attached to the cable itself. Most allow for a lapse of ten or twelve seconds before the shutter is tripped, ample in most cases; but in at least one model variable settings up to one minute are provided.

The trouble with using a delayed-action release for close-up self-portraits of a serious nature is that you retain no control over the all-important instant of shutter-clicking. You set the thing buzzing, race to your throne, make a frenzied effort to assume the pose you had in mind—and then begin to wonder and worry over whether everything has been correctly set. You convince yourself that your shutter is set for 1/100 of a second whereas it should be 1/10 and are in mid-air on your way to correct matters when the shutter trips.

A remote-control device is much better for self-portrait work. Two kinds might be mentioned. One kind is actuated by squeezing a rubber bulb. This bulb is connected by a long rubber tube to a plunger fastened in the cable-release socket. The other kind is simply an extra-long cable release. A five-foot cable is long enough for most purposes and works perfectly, but longer ones can be had.

Two other items of special equipment are desirable for the self-portraitist; a target and a mirror. The target may be almost any small object that will occupy the same position as the head. You focus on it, then assume your pose. A simple way to insure that the target will return to a constant position and yet is easily moveable is to have it suspended from the ceiling by a string. For dispensing with the target, have some manner in which it will be caught when tossed aside, or have a pulley arrangement for hoisting it out of the picture area.

In getting your focus, remember that the depth of field extends about ⅓ in front of (nearer the camera) the focus point and ⅔ behind. Thus, if you focus on your nose tip, you waste an area of good focus in front of your nose and may leave the back part of your head out of focus. Better to focus on the cheek bone or eye.

The focusing target is also of use as a target on which to train your lights in working out your lighting arrangement.

You don't need to work blind. Do what the painters do and look at yourself in a mirror. This mirror should be as close to the camera position as possible and tilted so that you will get a good view of yourself. While the view won't be precisely the same as the camera's, it will be a close approximation of it, closer than the portraitist gets when he stands beside his camera in taking a picture of someone else. A sketching easel with an arm for holding the top of the mirror so that it can be tilted is a handy arrangement.

You, of course, cannot see yourself in the camera finder, so make careful note of objects that limit your picture area. If such objects do not exist it may be well to provide them, such as strings hanging down to indicate the picture edges. Make some allowance for error; better to have a little waste space at the edges that you can crop in enlarging than to be missing an ear or a hand through some miscalculation. And if your camera does not focus through the taking lens, remember that in close-up work parallax is a real factor that must be compensated for.

A background of generous size is best. Whatever it is—muslin, velvet, or just plain wall—if it is seven or eight feet wide and reaches from floor to ceiling, it is none too large. Usually it is desired to have the background out of focus, which necessitates your sitting several feet in front of it, and the practical effect of working some distance from your back-

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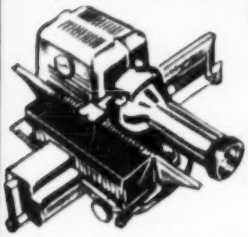

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ground is that of diminishing its size. So, if the background is small to begin with, you have the added worry of keeping your camera and yourself in line so that the background stays where it should be.

Working with artificial lights, it will take only two or three portrait sessions for any beginner, weary from racing from switch to switch, tinkering with faulty sockets, tripping over light cords, to appreciate the convenience of having all electrical controls centralized in one switch box. Such a box is doubly useful in self-portraiture. Have it within arm's reach and, without disturbing your pose or going through the business of checking your focus more than once, you can switch your lights on and off or switch from one combination of lights to another. It is not hard to make such a switch box, or you can buy one. If the load of your lighting equipment is heavy, it is well to have two inlets that tap two lines. Also, it saves on glare, heat, electricity, and burnt-out photoflood or projection bulbs if the wiring is such that pairs of lights can be switched on in series as well as in parallel. This greatly reduces the light yet the light balance remains the same, enabling you to do much of your planning before switching the lights on full.

Portrait lighting is properly a subject by itself. While some good photographers employ a complexity of expensive lights that would baffle an Edison, others just as good work with but a few simple lights that any amateur can buy for the price of a square meal. What you do is the important thing, not what you have.

If you use a reflected-light exposure meter, your hand placed in the position your head will take will give you a reading.

If you wish both hands to be included in the picture, you can make a simple device for holding the shutter release so you can push it with your foot.

If you make no special preparations, self-portraiture will be hit-or-miss and awkward. But prepare for it, and its special problems vanish as though they never existed. You then discover the most cooperative model in the world. If you like your pictures straight, he does not ask to be flattered. He is on instant call as long as you live. He never gets tired until you get tired. He is never late. He asks no fee. He is your willing collaborator in the most thorough and deliberate study of the human head that you can possibly make. As the great artist-scientist, Leonardo da Vinci, said nearly five hundred years ago: "The mirror, above all—the mirror is our teacher."—

Your Aquarium—an Underwater Color Studio

(*Continued from page 89*)

most cases the mainlight is usually found to be adequate.

Flash is the best source of illumination since it does not produce a great amount of heat and only emits a short burst of light. Lighting with photofloods is very distressing to the fish as they have no eyelids. Also, the heat produced by the

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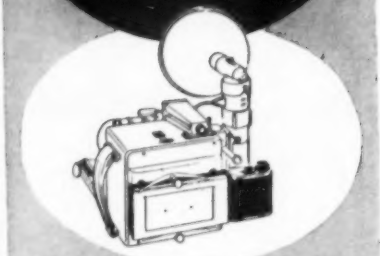

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lights at such close distances can cause the tank glass to crack or the aquarium cement to run. If you use floodlamps as a source of illumination, take a meter reading off a neutral gray card.

The light source (flashbulb) for both side- and 45-degree lighting should be placed about 1½ ft away from the fish (not 1½ ft away from the tank). While variations of over half a foot can completely knock off your exposure, it is not necessary to measure the distance down to the inch. Working at such close distances invalidates the ordinary guide numbers published by the film manufacturers, so as a starter, follow the suggested exposure guide. Remember that this is only a guide, as variations will occur when different equipment is used.

The numbers given below are not guide numbers. They are *f*-stop guides to be used when the light source is 1½ ft away from the fish. These tables are computed on the basis of using a five-in. polished reflector. Allow ½ *f*-stop larger opening for a satin reflector. In order to cut down light intensity when a large flashbulb and slow shutter speed are used in combination, use a diffuser over the light source or move the flashing unit farther back from the tank. With the latter method, only trial and error will determine how much the light intensity is cut down.

Using slow shutter speeds is impractical for two reasons: the light intensity is too great and only a few varieties of fish may be stopped in motion at speeds under 1/100 sec. Therefore, if you have a camera that is not synched for class M bulbs at 1/100 sec or above, use SM or SF bulbs which will give you a 1/200-sec effective shutter speed.

AQUARIUM FLASH EXPOSURE GUIDE

Ektachrome Type-B with recommended filter

Flashbulbs	8	5 & 25	11 & 40	SM & SF
Shutter speed				
1/25	f/32			f/11 at all speeds. No filter required.
1/50	f/22	f/32		
1/100	f/16	f/22	f/32	
1/200	f/11	f/16	f/22	
Ektachrome Type-F			Kodacolor Type-A	
1/100	f/32			Not recommended for Type F film. With Kodacolor A, f/22 at all speeds.
1/200	f/22	f/32		
Kodachrome Type-A with recommended filter				
1/50	f/32			f/16 at all speeds.
1/100	f/22	f/32		
1/200	f/16	f/22	f/32	

Tips and things to try

Always try to include a bit of the plant in the picture as it lends to the feeling of being underwater. You can use live plants but most of them are green. To break the monotony, artificial plants such as Color-Fern (which come in many col-

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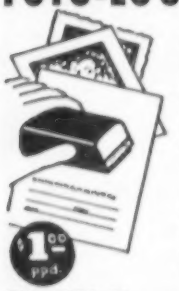

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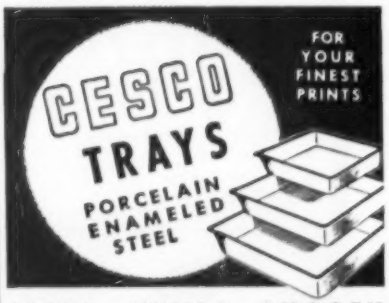

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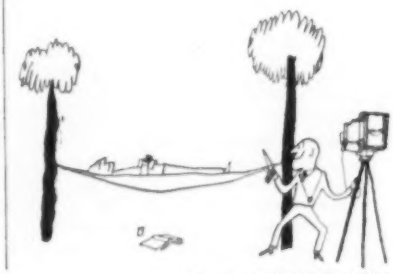
ors) may be used. They also have the advantage of re-use, as they can be dried to be used again and again. If not given proper care, natural underwater plants have a short life. A small rock can be used occasionally but make sure it is well scrubbed and rinsed before adding it to the tank, or the fish may die. Pay special attention to the color of the background paper. Never use a color that will overpower the fish in attention-getting qualities unless you are striving for a deliberate or unique effect. If desired, you may give the picture a colored-gravel bottom. First rinse a few pounds of colored gravel or crystals in hot water (or else your tank water will be filled with suspended dust particles). Then pour them between the front glass of the tank and the focus glass. Do this a few days before you are ready to photograph, to give the water a chance to settle.

For something different, try bounce-, diffused-, or backlighting. Colored diffusers or gelatins over the flash are good for novel effects. When using any of these methods, make sure to compensate for the light loss by opening up the lens. Try for humorous shots, such as the full front view of a fish (Hatchet fish are ideal for this) or even a tail-on view. A different camera angle to try is shooting down into the tank. Depth-of-field requirements must be considered with this angle.

Additional reminders

When coaxing the fish into the field of view, gently stroke your hand on the tank glass. Never tap on the tank in an attempt to get it into position as the sound is greatly magnified underwater. The fish may dash itself against the walls or even jump out of the water in an attempt to escape this form of torture. If the fish should land on the floor, wet hand first before picking it up carefully. Feed the fish before transferring it to the studio tank. A contented fish is more relaxed and will not scurry about constantly in search for food. Allow them to be in the tank for at least an hour so that they become accustomed to their new quarters. Lastly, patience is the keynote to success in fish photography. Since conversation with these creatures is impossible, a radio providing some soft music will tend to relax you between shots.

There are many more fish available to you than those listed on the opening page of this article. They come in a variety of colors and sizes. Use your imagination for combinations of different fishes and background colors, pick those you like the best, and get to work.—



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6. This contest closes February 1, 1956. All entries must be post marked on or before that date. Winner to be announced by March 1, 1956.
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THE FAMILY OF MAN. Prologue by Carl Sandburg, introduction by Edward Steichen. Deluxe edition published by Simon & Schuster in collaboration with the Maco Magazine Corporation for the Museum of Modern Art, New York. Boards, boxed, 226 pages, including portfolio of installation pictures, 8½x11, $10. Stiff paper cover edition published by the Maco Magazine Corporation, New York, 192 pages, 8½x11, $1.

Now that the tumult and the shouting have died down and the show is on the road, Edward Steichen's *Family of Man* has been preserved between the covers of two books—one paper-bound selling for $1, the other a deluxe edition with a $10 price tag. No exhibition in the history of photography has been so stupendous in scope, so controversial, or so successful. The whole achievement, for all the snide intellectual attacks made upon it, is indeed salient testimony to Steichen's picture sense, his faith in photography as a medium of communication, and his incomparable showmanship.

The Family of Man has been attacked by obscurantist critics, cavilers, "art" photographers nettled by its success, and professional photographers whose work was among the million odd pictures submitted but not hung. In spite of the attacks, heard in Greenwich Village coffee houses and esoteric journals, the public paraded into the Museum of Modern Art in droves, a phenomenon gleefully pounced upon by the elite as evidence of the show's intrinsic schmaltz. Just why an exhibition dedicated to the unity and dignity of man and made up of realistic photographs should be condemned as "schmaltz" eludes me.

The small gadflies who accomplish nothing can tell you glibly what Steichen should have done, how he sold out the downtrodden creative photographers, forcing their work to serve his theme . . . they can tell you that *The Family of Man* was not art, that it didn't belong in a museum. Actually, Steichen accomplished exactly what he set out to do, and if the result was rather more a stupendous picture essay than a collection of outstanding so-called "creative" photographs, he never intended it to be anything else. Steichen was fired by an idea, which he finally managed to project in the form of an exhibition of more than 500 photographs from 68 countries. And this projection turned out to be a dynamic unity in which the pictures themselves were intentionally subservient to the total effect which brought a new life of its own into being. If all the parts were not as great as the whole, Steichen had nonetheless brought off a vital creative act with enormous effect.

Certainly *The Family of Man* might have been better with fewer pictures; certainly there were some abominably bad ones in the show (as there are sometimes faulty bricks in a structure) and maybe its size, proportions, and design were too close to the format of a circus. Nevertheless, it all adds up to the conspicuous fact that Steichen in two years has done more to promote photography than Steiglitz and all his pious satellites ever accomplished in all the years of their precious coterie. Here is photography on the grand scale, given to the public with a sweep and majesty worthy of a great medium.

Anyway, all the pictures are now published in the two books. The deluxe edition is printed on heavy paper, contains a portfolio of installation pictures by Ezra Stoller, and is bound in boards and boxed. In spite of the fact that the reader cannot experience the impact of the original exhibition's size, much of the excitement and emotional content are preserved in the books, and one comes away from the whole thing convinced that Steichen is one of the great picture editors of our time in addition to being photography's greatest publicist.—*Bruce Downes*

contests and markets

CONTESTS

CLAYTON CHEMICAL & PACKAGING CO. has announced a contest featuring pictures processed in any Clayton chemicals. The contest is open to all residents of continental United States over 16 years of age. Size or number of prints is not restricted and photographs will be judged by experts from leading photographic publications on the basis of composition, interest, and quality. An entry blank or replica thereof, or a sales slip for Clayton chemicals must be attached to every entry. First prize in the contest is an all-expense-paid trip to Paris for two via TWA for two weeks. The next five prizes are $150 in cash to the photographer with $50 in cash to the camera club of his choice; five additional prizes will be $75 to the photographer with $25 to his designated camera club. All entries must be sent to Clayton Chemical & Packaging Co. at 5420 N. Damen Ave., Chicago, Ill., on or before the closing date, February 1, 1956.

CARL ZEISS, INC., is sponsoring a contest for black-and-white photographs taken with postwar models of Zeiss Ikon cameras. A maximum of six pictures may be entered. They will be judged on technical excellence and general interest by a panel consisting of Don Bennett, APSA, *PSA Journal*; Jacob Deschin, FPSA, *The New York Times*; Kip Ross, *The National Geographic Magazine*; and Dr. I. Schmidt, FPSA. A total of 32 prizes includes a first prize of a Contax IIIa with 50-mm Sonnar *f*/1.5 lens and built-in exposure meter, second prize of Contax IIa with 50-mm Sonnar *f*/1.5 lens, and two third prizes of a Contaflex II with built-in exposure meter. Full information and rules and entry form may be obtained from Zeiss Ikon dealers or by writing Carl Zeiss, Inc., 485 Fifth Ave., New York 17, N. Y. Deadline is November 15.—▶

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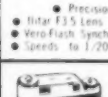

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By BOB RAHTZ

10

These useful methods will help improve

Carl Lindquist

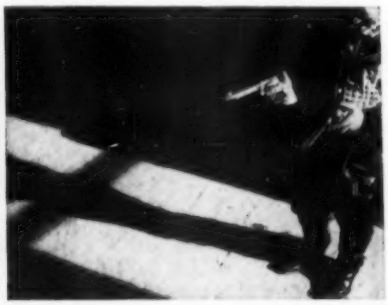
Camera handling on pan shots calls for very slow movement. Pans can be accomplished with or without tripod.

THE pan shot has been much abused, much overused, and badly executed—particularly in amateur films. I have seen films in which an amateur panned a full 360 degrees, and caused one member of his audience to reach for an aspirin bottle. At New York's Rockefeller Center, the Grand Canyon, and other tourist attractions, I have watched amateur movie makers swing their cameras up and down, and right and left at breakneck speed. I felt sorry for the people who would have to sit through these films.

However, poor use of a good technique is no excuse for discarding it completely. I do not believe that an amateur should *never* pan. I believe the amateur should learn all the possibilities of panning, and then use these techniques carefully.

I have selected ten different panning and pan series techniques. Before I discuss each specifically, let me quickly list them and tell you about camera handling:

Photographs by the author unless otherwise credited.



→

Surprise pan begins with shadow of figure. Audience cannot tell what subject really is. Photographer ends surprise with finish of pan on boy instead of the expected desperado.

→

Swish pan is used between two straight shots of woman shopping. Object of this pan is to obscure all subject matter while camera is moving, and give transition to sequences.

panning techniques

the quality and visual interest of your home movies

1 The scenic pan. It aims at impressing the viewer with the magnificence of a landscape, mountain range, city skyline, or other spectacular scene.

2 The character-reaction pan. Through the juxtaposition of a straight shot of a subject with a pan you can get the feeling that the subject is experiencing what you show in the pan.

3 The surprise-ending pan. This pan starts with one subject and ends with something completely unexpected.

4 The follow pan. It is used to follow a subject in motion, such as a runner, or an automobile.

5 The rhythmic pan. It is a series of short, quick pans aimed at getting across a particular feeling or idea.

6 The "cowboys-and-Indians" pan. This is another series of pans. In a Western, for example, the camera first goes from left to right (with the Indians), then from right to left (showing the cowboys), and then into shorter pans showing the meeting place (the valley where the fighting starts).

7 The transition pan. It is really several different pans. One, for example, is a pan that ends in a dark shadow area to complete a scene. The next scene starts with a pan from a dark shadow area.

8 The swish pan. It is a pan that is executed so rapidly that none of the details of the scene can be distinguished during the movement of the camera.

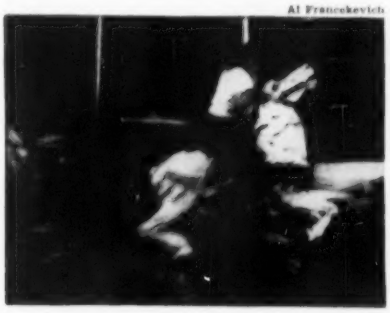
9 The editorial pan. It makes a point about the subject which appears at the start of it, by showing another subject in the last part of it.

10 The intermittent pan. The camera—continuously running—moves, then stops on an object, moves again, and then stops at another object.

Before going into each of these (*Continued on page* 137)

Follow pan is used in photographing subjects that are moving at high speeds. →

Al Francekevich



Scenic pan aims at impressing viewer with grandeur of a spectacular view. ↓

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Write before you shoot

CCNY MOVIE SHORT COURSE—Part 1

By PHILIP FREUND
Instructor, Documentary Film Writing, Institute of Film Techniques, College of the City of New York

The first in a series of four "lectures" by instructors at CCNY Institute of Film techniques.

SHOULD you put your picture on paper before you put it on film? One simple answer is that paper costs less, and that is what we usually say to students who ask us at the Film Institute. In fact, your whole picture is likely to be far less expensive if you start with a complete plan for it. Then you can have it clearly visualized before your camera ever turns. But still some students demur at taking a script-writing course. To them, shooting from a script sounds like a less happy and adventurous way of film making.

Frequently they quote film directors, who say a shooting script is needless and the best results come from improvisation. A classic example of one is the great Russian director, Sergei Eisenstein. When Eisenstein set out to make his film story *Potemkin*, he had a long and fully detailed script which had been written for him by Lunacharski, a high Russian official. Then Eisenstein arrived at Odessa and saw the dramatic flight of steps which lead down to the harbor. A whole new set of images raced through his mind, and he tore up the script and started anew on the spot and created a cinematic masterpiece.

"True!" we reply. But we also remark that one has to be an Eisenstein, a directorial genius, and also very lucky and very well-financed to go ahead in such

Photographs by Alan H. Pesetsky

29.	Med.	Drummer boy (4 sec.)
30.	Med.	Bugle boy (4 sec.)
31.	C. U.	Drum being beaten (3 sec.)
32.	C. U.	Head of bugle boy showing puffed cheeks (3 sec.)
33.	Med. to Long	Front of band; slowly tilting up to long shot of giant clown balloon coming into sight (9 sec.)
34.	Close 2-shot	Two children looking up as they catch sight of balloon (4 sec.)
35.	Med. low angle	Balloon passing slowly over head (children in foregound if possible) (5 sec.)
36.	Med. very low angle	Man holding one of the ropes securing the balloon. (4 sec.)

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fashion. "Shooting on the cuff," as it is called, is often very costly—thousands of feet of raw stock are used up, much time is lost, and much devoted effort and emotion on the part of the actors is spent to no purpose. Today, Hollywood has come around to this opinion. Formerly temperamental directors were indulged out there in the matter of improvisation; but now studio heads are bent on lower budgets and demand more detailed preparation and closer attention to the scenario. Last-minute inspiration for the director is not ruled out. It cannot and should not be, but it is increasingly restricted.

Well, does the maker of home movies need a shooting script? Our answer is no, of course, if he is only interested in taking a few shots of his toddling offspring, or the family on a sunny picnic. A more important family occasion—a reunion, a celebration—might follow a "treatment," a brief outline, sketched out in advance and enacted, for a more memorable record. But at moments when the hitherto amateur motion picture photographer turns semi-professional or fully so, perhaps undertaking to make a film about the beauties of a local summer hotel, or for some community purpose, he will find a well-thought-out script invaluable.

In such instances, as our students learn, the script itself often serves as a contract between the sponsors of the film, or those who will pay for it, and the producer. It gives a rather specific approximation of what sort of picture must be delivered when the job is ended. It also protects the producer, because it sets limits to what he must do. The script shows all that is expected of him, and it should be approved by the sponsors before he goes ahead, so that his responsibility is lessened. As long as he shoots the agreed-upon script, he fulfills the terms of his contract. Once again, a certain amount of leeway is left for improvisation, to let him improve upon the basic idea of the film when he is actually working on it, and to let him meet new problems and possibilities which might arise on the spot. But substantially the script represents the story he is to turn out.

The script, then, is to be considered as a blueprint for action. Even a "treatment," a general synopsis of the plan for the film, is not adequate. Without a full shooting script, one cannnot really estimate the length of a proposed film or properly figure out its likely cost and budget it, and hence bid intelligently against competition. A shooting script, with a scene-by-scene description of camera angles, is also needed if you are going to work out a shooting schedule. Not to have such a schedule invites mistakes and confusion. Nearly always, a film is shot out of sequence. Scenes are taken in an order arranged for the greatest convenience of the crew, depending on the accessibility of outdoor locations, what actors are available and when, day-to-day lighting conditions, and other factors. Then the cutter pieces them together with the shooting script to guide him. It is easy, when in hustle and hurry on location, to overlook a scene now and then, which necessitates going back another day for the costly task of a retake. A careful listing and check of scene numbers on the shooting schedule prevents this from occurring, and a thoroughly prepared script must precede the shooting schedule and be the basis for it.

Or let us observe another instance in which the actual blueprint, the shooting script, proves itself very helpful. The two-column script form used by most documentary film makers provides for the camera work and the dramatic action of the story to be described on one side of the page, the left, while the verbal commentary is set down on the right side:

18. EXT DAY MS 2-S HA 3/4 RA of Mary and John, seated on rock on beach below cliff, as they converse.	NARRATOR: They found this a perfect time and place to talk things over.
After a moment, Mary suddenly rises and runs from rock. PAN	But no --

These somewhat elaborate camera instructions can be translated as follows: 18 is the scene number; EXT DAY refers to the desired lighting effect of the sequence of which this is the master scene; MS means Medium Shot; 2-S means that the camera is to be focused equally on Mary and John, rather than featuring only one of them; the HA—High Angle—means that the camera is to shoot down at them from a higher vantage point; and the ¾ RA suggests that the view of them will be from the rear, and somewhat obliquely, on the right or left side. Most camera instructions are far simpler than this one, but this example shows how briefly yet clearly it can all be set down in a professional script. At the same time, the two-column form indicates at a glance to the director and camera operator how long the scene needs to be, and precisely how the action is to be cued to the verbal commentary: Mary's sudden flight from John is described on a line on the page exactly opposite the narrator's remark: "But no—," so we know that both are to occur at the same moment. A script of this sort is a blueprint which can be taken in without study; in addition, the number of words in the commentary dictate the minimum number of feet the scene must run, to make sure there will be enough footage to cover the narration. To determine this, the director uses a formula of roughly five words to three feet of dramatic action.

Finer points of film writing, including the often delicate and difficult problem of organizing the script over-all for the best dramatic impact or clearest presentation of the subject, are taught in our City College courses. There our students learn how to make the fullest use of the resources of film as a medium. They master the tricky but helpful and time-saving use of the intercut, and learn about opticals and special effects. They develop skill in writing concise narration for picture images. And they come to know a handy glossary of film terms.—▶

New high-speed telephoto lens for 8-mm movies

The Kinotel f/1.1 Lens

A NEW high-speed telephoto lens for most 8-mm movie cameras with interchangeable lenses has thrown open the possibilities for producing available-light color and black-and-white films. The lens, 1½ inches in focal length, opens up to f/1.1 and stops down to f/16. It sells for $89.95 and is imported by the Photographic Importing and Distributing Corporation, 135 Broadway, New York, N. Y.

The seven-element lens comes in a D or a Bell & Howell mount. It weighs only 6 ounces.

The problem of view finding caused by high-speed lenses with focal lengths longer than 1½ inches does not exist with this lens. The normal 1½-inch viewfinder gives the correct field of view.

In tests made using Kin-O-Lux Gold Seal Film (ASA 200 tungsten) good black-and-white exposures were obtained when shooting under light from a kitchen fluorescent overhead light with lens wide open. Also, good pictures were made under lighting supplied by one 60-watt ceiling fixture.

The 8-mm amateur movie maker might well investigate the possibilities of shooting in the twilight areas of black-and-white and color photography. This f/1.1 lens transmits approximately 2 stops more light than a normal f/1.9 lens.—

10 Panning Techniques

(*Continued from page* 132)

pans specifically, let us investigate one of the most important areas of the panning technique—*camera handling*.

Slow and steady—these are the bywords in handling the camera on a pan shot. Panning a pan shot slowly enough to make the passing scene absolutely clear to the viewer takes a good deal of practice, and you may ruin some film before you get the technique correct. However, this practice will pay off in producing good films.

In training yourself to pan slowly, think of your camera as a tremendously heavy

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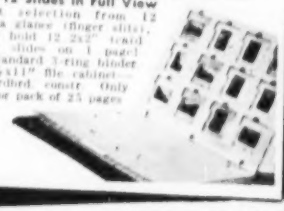

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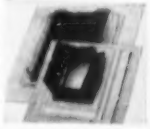

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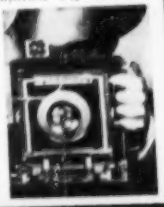

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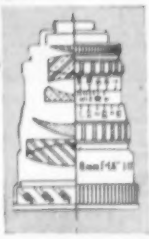

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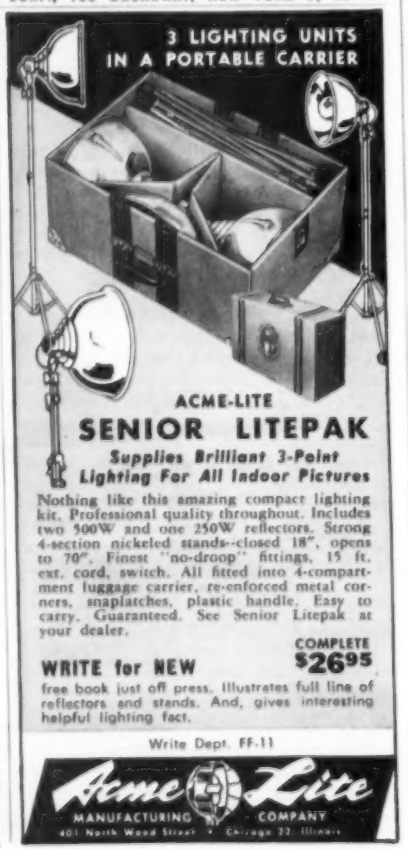

object that you can barely move. Make frequent dry runs of a pan with this in mind. Have someone time you making a pan. Then take it again, making the pan in twice as much time, for you probably will still be moving too fast. Practice and practice again to keep your speed down.

As to camera steadiness while panning, there are many devices that can be employed to help you here. First, if possible, make your pan with the camera on a tripod. The best technique, however, is not to depend on the handle of the pan head to turn the camera. Rather, grasp the camera firmly in your hands and move it evenly across the scene. Make sure at all times that you are not letting the camera tip up or down.

If you must hand-hold your pan, here's the standard technique: Grasp the camera firmly, with the elbows braced against the body. Then point your feet, not in the direction of what you'll shoot at the beginning of the pan, but rather at what will appear at the *end* of the pan. In this way you can pivot your body around smoothly. This also will help you keep the camera from tipping.

To further insure steadiness in my pans, I have sometimes made them while sitting in a swivel chair. I seat myself in the chair with my elbows braced against the arms. Then I have an assistant turn the chair at the proper speed. If no assistant is available, I turn the chair myself by pushing my legs against the ground.

Some film makers find it convenient to use a unipod in panning. A unipod is a one-legged tripod. The camera is fastened to one end, while the base fits into a leather socket strapped to the filmer, much like the device worn by flag bearers in parades. This provides firm support and allows more freedom for the body in pivoting during the pan.

In some pan situations you've got to watch your depth of field and exposure. If you are panning across a flat plane you're on safe ground and can keep the same focus. But if a single pan requires you to show a distant object and a near object in clear focus, you may have to adjust the focus in the course of panning. Try to avoid this by stopping down as far as possible to get maximum depth of field. If this is impractical, you will need an assistant to adjust the focus as you shoot. This should be very carefully rehearsed. You must give the viewer the impression that you know just where you are going with your camera.

Remember that a pan often will last longer than a steady camera shot, so be sure that the spring of your camera motor is fully wound before shooting. Check the amount of footage you can get on one wind of the motor; you don't want to run out of gas in the middle of a pan.

Now, let us discuss panning techniques specifically.

In a pan shot, you must remember, the film maker takes the viewer by the hand (or eye, if you will) and permits him to see only what is gradually revealed on the screen in the course of the pan. Contrast this with the steady camera shot, which remains on the screen for the passive inspection and appreciation of the viewer.

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3. The prizes will be awarded to the students whose photographs are judged best by the editors of POPULAR PHOTOGRAPHY. In case of ties, duplicate prizes will be awarded.

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Here are the various pan techniques:

The scenic pan: Probably the most frequent legitimate use of the pan aims to impress the viewer with some particular feature of the scene. It may be the height of a great building or the sheer splendor of a skyline. Photographing these scenes with a non-moving camera may not convey to the viewer their full potential. As you pan you are really saying to your viewer: "Look, isn't this a tremendous sight, and there's more of it, and more, and more."

But even this simple-to-make kind of pan can be improved upon with a little imagination. Every pan shot of a building needn't be a naked scene of nothing but the building. Start your pan on some interesting feature of the surroundings. In Rockefeller Center, open the pan with the famous statue of Atlas holding up the world, before tilting up to the buildings themselves. In Grand Canyon, frame the opening with one of the gnarled trees that dot the rim of the canyon. If you're lucky enough to be able to catch your subject reflected in a puddle of rainwater or a pool, start the pan with this reflection. The point is, keep your eyes open for ways to make the scenic pan as impressive and interesting as possible.

The character-reaction pan: Consider these two movie shots: *Shot 1*, a boy looks up at the sky. *Shot 2*, a flock of birds flies by in the sky. In juxtaposing these two scenes you are telling your viewer that the birds of *Shot 2* are what the boy of *Shot 1* saw when he looked up at the sky.

This simple film principle can be put to good use in panning. Let's get back for a second to our Rockefeller Center pan. Your natural impulse is to pan up the building. Good, but suppose you precede the pan with a shot of your companion as he tilts his head back in inspection of the tall building. You then have, instead of a simple record shot of the building, one that shows the viewer what the friend is seeing. In other words, you are presenting the pan of the building as someone's experience—always more interesting than a straight shot.

The surprise-ending pan: A characteristic of the pan shot is that the viewer doesn't always know just where you are going as you direct his eye in your pan. Take advantage of this by using the pan to create suspense and wind up with a surprise ending.

As an example of what can be done, I remember a newsreel clip of a few years ago of a college where the students had done some widely publicized cutting-up. One shot was of a flagpole on the campus. The camera panned slowly up the pole and I asked myself, "What's the point of this? This is just an ordinary old flagpole." But in due time the camera came to a halt on the top of the pole, where a lady's undergarment was flying in the breeze.

I used the same technique in a film of my young son, who had been in the habit of helping himself to candy on the sly, with disastrous results to his appearance. I decided the best way of filming this was with a tilt shot. I began at his legs, proceeded upward, showing him neatly dressed, and finished the shot on his face, which was completely smeared with chocolate. By arranging my shot this way I think I accomplished much more than I could have with a full-length steady camera shot.

The follow pan: Panning is often used to follow the movement of a person, an animal, or a vehicle. The follow pan is a perfectly legitimate use of the pan, but there is a tendency to overdo it. Use the follow pan only if you want to emphasize the movement itself. You would be justified in follow panning, say, Junior's first ride on his new bicycle, daughter's first toddling steps, a train racing full speed across the picture. But often you will do just as well by setting your camera shot. Or, you can take the movement from several different angles and edit the shots into a smoothly flowing unit of motion.

Sometimes a double follow pan is effective. Suppose you want to film baby and dog playing on the floor. Dog loses interest and saunters away. Baby, nothing daunted, crawls after him, obviously outdistanced. Film it this way: Baby and dog playing. Follow pan dog moving away. Swing quick back to baby and follow pan him as he tries pathetically to catch up. Here the follow pan of the dog clearly shows his independence and the follow pan of baby concentrates attention on his determination to catch up. Filming the scene this way will insure a family chuckle at the screening.

There are a few simple precautions to be observed in follow panning. Keep your moving object in the center of the frame, or a little behind the center. This allows him plenty of room on the frame to move into and keeps the viewer from feeling that the object will inadvertently move out of the frame. However, when you have shown enough movement, it is often effective to end the pan by having the object move out of the frame. This is a clear indication that the scene is finished.

The rhythmic pan: Rather subtle but extremely effective is the use of the pan to create or heighten a rhythmic effect. Since the usual pan is, or should be, slow and deliberate, it can be a striking counter to a series of short, quick shots. Here's an example: I once made a short film centering on the picturesque ferry that runs across the Hudson River from Rhinecliff to Kingston, New York. At the beginning of the film I wanted to show the driver of our car racing to the ferry with little time to spare before the scheduled time of departure. For this effect I took a series of short shots: the worried driver, the scenery speeding by, close-up of a wrist watch, a finger on the ferry schedule. But, as often happens, the ferry was late, and our rush was unnecessary. So I shot our car pulling up at the ferry terminal to the end of a long line of waiting cars, panned across the line, and wound up the shot with a view of the empty ferry slip. The pan gave me the effect of anti-climax that I wanted by abruptly changing the rhythm of the previous scenes.

Other rhythmic effects can also be achieved with pans. If you want to show gradually accelerating speed, begin with slow pans and gradually increase their

tempo. You might use this in a film of railroad trains leaving the depot and picking up speed for their open-country runs. Another use would be to show how a person who is getting more and more intoxicated sees the world around him.

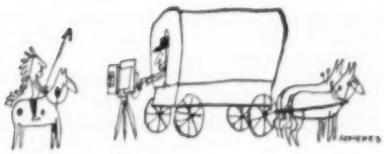
The cowboys-and-Indians pan: You've seen this one time and again in Western films. The cowboys and the Indians are racing to the covered-wagon train from opposite directions. The camera pans from left to right with the Indians. Quick cut to a right-to-left pan of the cowboys. Cut to the wagon train. Then alternate shorter pans as the two groups get closer and closer to the train.

As old as this technique is it never fails to get the kids in the audience onto the edge of their seats. There are times when you will want to use it yourself. The basic elements are two moving groups that you will want to show converging on one spot. Common situations would be: Dad, late for work, driving to the railroad station, and the train running implacably along, on schedule; Junior, carrying a birthday present for Mom that he doesn't want her to see yet, and Mom, both converging on the house from different directions; in a camp film, one boy placidly paddling his canoe downstream, while a campmate rushes from another direction to warn him of the rapids up ahead.

In editing your materials you'll want to make sure that each succeeding set of pans is a bit shorter than the previous one to heighten the tension of the sequence. Then, you'll want to finish with a shot of the two opposing forces meeting (or just missing each other, if that's to be your point).

The transition pan: Amateur film makers, who lack the common transition devices of the professionals, such as fades and dissolves, often have difficulty moving gracefully from one sequence to another. The pan can be used to good effect in this way. For example, at the close of one sequence you have your central character on a beach; at the opening of the next sequence you want to show him on a city street. Shoot it this way: Long shot of the character on the beach; close shot of him looking up at the blue sky, which is dotted with puffy white clouds, then pan up to the sky; several steady camera shots of the sky; from the last of these pan down to show your character walking on the city street.

Another sort of transition can be made by arranging to have an appropriate completely black area within shooting distance at the end of one sequence and the beginning of the next. A tunnel, a dark room, a subway entrance will do. Then close the first sequence by panning into the dark area, either with or without your central character, and open the next



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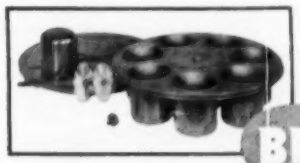

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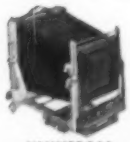

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by panning out of the second dark area into the light.

The swish pan: Also called the slip pan, it is a pan that's made so rapidly none of the details of the scene can be made out during the movement of the camera. Its greatest use is as a transition device, linking one sequence with another. In a film of mine, I wanted to get my young son from the breakfast table to his school. I shot him at the table, then, stationed in front of the school. I swish panned along the street and finished the pan on my son entering the school building. I could just as well have swish panned at the end of the first sequence and used that as the transition.

Swish pans can also be effectively used within scenes. You may recall one use of it in *Bend of the River*, a Western with Jimmy Stewart. Stewart is shown moseying lazily along the brush on horseback; suddenly he stops and perks up his head, as a muffled voice is heard. Stewart turns quickly toward the sound and the camera swish pans to a close-up of Arthur Kennedy, with a rope around his neck, in the process of being hanged from a tree. Here the swish pan imitates the swift, startled turn of Stewart's glance.

The editorial pan: A pan can sometimes be employed to make a subtle editorial comment on a scene. I remember a pan like this in a Christmas broadcast of Ed Murrow's *See It Now*. The program showed how the men on an American destroyer on Formosa duty were spending the holiday. Near the end of the show was a close shot of a group of sailors on the deck singing *Silent Night*. This shot was held for most of the song, then the camera panned from the men slowly across the side of the ship, then to the icy water rushing by, while the sound track held the singing. The pan juxtaposed the men and the sea, placing them in a most un-Christmaslike setting, far from home, in effect saying that this is what war will do.

I used this type of pan in a film about a boy who was forced to stay at home because of illness. I opened with a shot taken from my window of a group of children playing on a bright, sunlit street. This moved into a pan to the right to reveal the boy standing at the window looking longingly at the scene below. My pan clearly turned an ordinary shot of children playing into a bit of a sympathy for the sick boy.

Intermittent pan: For some reason that I can't fathom, film purists say that panning inanimate objects is not cricket, but certainly this ban is honored more in the breach than in the observance. The simple fact is that a pan of objects, say of the contents of a man's pocket spread on a table, is more interesting than a steady camera shot of them. In addition, by panning, the camera can inspect each of the objects individually and focus attention on them one at a time.

I have seen dead pans used to tie a series of vacation travel shots together into a unified film. A friend of mine hit upon the idea of using a road map as the unifying element. On a printed map he marked his route with a heavy crayon line that the camera would pick up. Then

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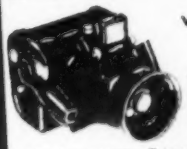

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between each set of shots taken at one vacation place, he would insert a pan along the crayoned route to advance him to the place of the next shots. A map is a dead, inanimate object, but in this use it certainly came alive with filmic function.

I hope that I have succeeded in demonstrating that the pan, far from being a dying or dead adjunct to film making, can actually add a great deal to making your home movies more expressive and, hence, more interesting. But, like all techniques, the pan must be used only where the situation calls for it, and, it must be executed well.—

When Your Film Is Too Fast

(*Continued from page 77*)

and X10 which respectively transmit ½, ¼, ⅛, and 1/10 of the light that strikes them.) Some manufacturers' lines include only one or two neutral density filters while two lines which are specifically designed for professional motion-picture and analytical work offer 7 and 13 filters respectively. These filters are "neutral" inasmuch as they transmit or absorb equal amounts of all the visible colors in the spectrum. They are not intended to alter the subject colors when used for color photography nor to lighten or darken the tones of gray in which various colors are reproduced in black-and-white photography.

The most obvious need for neutral density filters occurs when the shutter speeds and diaphragm settings on the camera are insufficient to make the proper exposure because the light is too bright. This occurs particularly with cameras that have shutter speeds up to only 1/100 or 1/200 and diaphragm settings down to *f*/16.

One photographer we know has had great success with Kodak Tri-X film using 1/200 at *f*/16 as his basic exposure in average sunlight. When development is slightly extended to accommodate indoor exposures on the roll or when situations occur like snow, water, polished surfaces, etc., the neutral density filter comes in mighty handy. If he wants the equivalent of *f*/22, he sets his camera lens at the smallest opening, *f*/16, and slips the X2 neutral density filter over his lens, and thus exposes correctly.

The need to stop down beyond the diaphragm range of the lens is frequently encountered in shooting black-and-white movies, especially outdoors. The movie maker can alter his exposure only through use of the lens diaphragm. Any appreciable change in his film speed (frames per second) affects animation. It isn't surprising, therefore, to find extensive use of neutral density filters among professional cinematographers.

Another and even more common situation calling for such action occurs when using a camera that is synchronized for flash only at the slower speeds. There are a good many cameras in use, and still being manufactured, that are synchronized in this manner. You can use Class M flashbulbs only up to 1/25 second. Using

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a popular black-and-white film like Super-XX at 1/25 gives you the high and unwieldy guide number of 250. That means that at f/16 your subject must be about 16 feet away from your flashbulb. Adding the X2 neutral density filter permits proper exposure at 11 feet. And if you use the X4 filter, you can set up at only 8 feet away. The filter makes the difference between success and failure in composition as well as exposure. The method recommended in some quarters of using a handkerchief over the flashbulb to cut down the light output just cannot compare with neutral density filters for convenience and accuracy.

How many times too have you taken a picture and felt that the result would have been vastly improved if the background were not so distracting? One method of achieving a background that does not compete with the subject for attention is to have that background out of focus. For example, if you were doing a casual outdoor portrait, you could assure the dominance of the subject and a more neutral background by using as wide a lens opening as possible. This serves to diminish the depth of field to its narrowest and thereby throw the background out of focus. There are times, however, when you cannot increase your shutter speed sufficiently to compensate for opening the diaphragm so much. Again, the neutral density filter is the answer. It cuts down the quantity of light and in no way affects the depth of field, which is determined by the diaphragm setting of the lens.

Here, then, is what a neutral density filter can do. It reduces, by an accurately calculated amount, the quantity of light entering the camera lens. (If necessary, two N.D. filters can be used together—the resultant filter factor being the sum of the two factors.) The inherent quality of the light is unchanged. It can be used with any film, color or black-and-white; movie emulsions, as well as still. Inasmuch as it does not affect light quality, it can be used in combination with any other filter like the contrast or correction type. Neutral density filters are small, inexpensive, and have a place in almost every camera outfit where the new high-speed films are being used, or may be in the predictable future.—

Camera in the Courtroom

(*Continued from page 75*)

interfere with the dignity of the proceedings when the proper equipment and materials are employed. Accordingly, only small, unobtrusive cameras were permitted. (Leica M-3s had been supplied for the occasion by Gene Anderegg of E. Leitz, Inc., who is also a Technical Associate of the NPPA.) These cameras were loaded with superspeed Tri-X film and positioned around the sides and rear of the banquet hall—some fitted with normal 50-mm lenses, others with medium-long focal length lenses, and others still with long telephotos. Thus, general views as well as close-ups of the speakers and presentations could be made from distant vantage points, the inherent speed and

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The NPPA has, since its inception, campaigned actively and continuously to open all doors that were improperly closed to the news camera. Opening the courts to news cameras, operating unobtrusively with full regard for dignity and decorum, has been our *Number One* objective, because we believe the matter of courtroom photography to be symbolic of the many unwarranted restrictions against visual reporting inflicted on the American public. Our crusade has been waged with written articles; addresses before bar-association groups, editors and publishers; discussions at college and university short courses in photojournalism, and wherever members and executives of the NPPA have been invited to speak on the relationship of pictures to the over-all news report or to give their perspective of the life and attitudes of the news photographer. As a result, we have enlisted the support of many responsible individuals in high places as well as influential citizens and professional groups.

The appearance at our annual banquet of the Attorney General, highest legal officer in the executive branch of the United States Government, was the high point of our campaign; for, with a broad understanding of the obligations to the people of all branches of government and of the people's right to know, Mr. Brownell chose as his subject the relationship of a free press to the prohibition of camera reporting of court proceedings. No wonder that the news photographers, editors, and high public officials assembled at the banquet hung onto Mr. Brownell's every word. And the Attorney General did not disappoint his audience.

He began by tracing what he termed "the remarkable growth of photography in the press, its overwhelming influence upon the people, and its equally great responsibility to them."

Presently, he was discussing the pros and cons of Canon 35. Where did he stand on this controversial subject? He had already stated: "At this stage in our enlightened history, no defense would seem to be necessary for securing the liberty of the press against those who would seek to impair or destroy it. We have learned from the experience of others that without a free, courageous, and vigilant press, our system of government cannot function. Fraud, corruption, and dishonesty in and out of government would flourish undetected. Injustice and indifference to the rights of the accused would thrive in the courts unchecked. Poverty, slums, and other evil conditions would go unnoticed and uncorrected. For these reasons, it has been said that next to a fair trial by jury, freedom of the press is the most precious right which the people possess under our Bill of Rights."

Also he had said: "We need not debate this point with those who would rank first in the order of priority freedom of speech, freedom of religion, the right to privacy, or any other freedom guaranteed by the Bill of Rights. It would be as fruitless to do so as to debate whether the chicken or the egg came first—or whether the man with the pad and pencil has a more important role in the press than the man with the clicking camera."

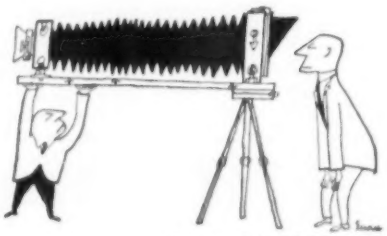
After outlining conditions in courts more than 20 years ago which led to the drafting of Canon 35 by the American Bar Association, he went on: "It is intended to prevent cameras from diverting the attention of judge and jury to the case, to permit lawyers to carry out faithfully their obligation to the accused, and to enable witnesses to discharge their obligations as citizens. These are the ingredients of a fair public trial—to dilute them would render a trial and justice a mockery and delusion.

"Considerable criticism has been leveled at Canon 35 because of the strict and inflexible construction given to it by some judges. In a few instances, the press has been barred from taking pictures in a courtroom of a ceremony which attends the swearing in of a new United States District Attorney. In other cases judges have forbidden photographers from taking pictures of naturalization proceedings. Still other judges have barred pictures when a prominent member of the bar has addressed a group of citizens on the subject of the Constitution.

"The [National] Press Photographers Association urges that the severity of Canon 35 should now be relaxed; that the Rule had its roots in the brash photography in vogue more than 20 years ago when flashbulbs were used; and that there is no reason to continue the Rule at this time because the techniques of photography have progressed to such a fine point that pictures can be taken quietly and unobtrusively without detracting from the dignity of the proceeding or impairing the rights of the accused."

Finally, he referred to the specific admission his audience was waiting for: "It is true that there is a vast difference between setting off a blast of flash powder in use at the time Canon 35 was adopted and the small silent camera which would now be used.

"In recent years, some state judges have experimented in permitting photographs to be taken in the courtroom under conditions which would tend to avoid disturbance and assure decorum. Apparently, there are federal judges also who feel that Canon 35 may be safely relaxed without harm to the dignity of the court or the rights of the accused. One federal judge in North Carolina has recommended that Canon 35 be revised so as to permit individual judges to decide



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4. BROCHURE: Information on copy and close-up. Argus.

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6. BROCHURE: List and prices of 400 items for Exakta cameras. Exakta Camera Co.

8. BOOKLET: For Prize Winning Pictures—Graflex., Specifications, etc. 32 pp., illus. Graflex.

9. BOOKLETS: "Rollei," 12 pp., illus. description and details, Rolleiflex, Rolleicord.

10. BOOKLET: The Practical Accessories for Rollei Cameras. 24 pp., illus. Burleigh Brooks.

11. BROCHURE: "Realist 35"; detailed facts on Model A and B; accessories. Realist, Inc.

12. BOOKLET: "The Voigtlander Line." Complete details, description full line; illus. Willoughby's Wholesale.

13. BOOKLET: The Robot Camera in Science and Industry. 4 pp., mimeo; Intercontinental Marketing.

14. BOOKLETS: (a) The Royal Robot; (b) Robot Underwater Camera; (c) Robot Accessories. Intercontinental Marketing.

15. BOOKLET: Omega 120; data description; Simmon Bros.

16. CATALOG: (a) Leica M-3; 10 pp., illus., (b) Product Directory, includes every piece of Leica equipment; 72 pp., illus. E. Leitz.

17. BOOK: (a) Leica Manual; 400 + pp., illus., twelfth edition, with M-3 supplement; cloth bound; $5.00. (b) Pocket Leica Book; 192 pp., illus., hard cover, $2.95; (c) Close up and Photomicrography with the Leica, 35¢; all obtainable thru dealers only. E. Leitz.

18. BROCHURE: Commercial Applications of the Stereo-Realist. 4 pp., illus., plus 12 pages of detailed information relating to modern selling. Realist, Inc.

19. BROCHURE: Realist 45, description, illus. Realist, Inc.

20. BOOK: Stereo Realist Manual. A complete guide to Stereo Photography. $6.00 Morgan & Lester.

87. BOOKLETS: (a) Minolta "A"; (b) Minolta 35, Model II and Rokkor lenses; (c) Minolta Autocord and Minoltacord; (d) Minolta Jr. B-C Flash Gun Minolta Camera Co.

88. BOOKLET: Holiday Photography, 25¢; Konica Camera Co.

CAMERAS, MOTION PICTURE

21. BROCHURE: The Auricon Cine-Voice. 16mm camera for professionals. Berndt-Bach, Inc.

22. BROCHURE: Same as 21, except for home movie makers.

23. BOOKLET: How to use your Cine-Voice. 16 mm sound-on-film Recording Camera. Berndt-Bach.

24. CATALOG: 40 pp., illus. Auricon Cameras. Berndt-Bach.

25. BOOKLET: Cameras by Revere.

26. BOOKLET: How To Take Better Sports Films. 24 pp., illus. Paillard Products.

27. BOOKLET: How To Take Better Vacation Movies, illus., charts. Paillard Products.

28. MAGAZINE: The Bolex Reporter, monthly, available thru franchised dealers only. Paillard.

MOTION PICTURE ACCESSORIES

29. BOOKLETS: (a) Features and operation of Curvamatic Splicer, (b) Features of hi-fi "Balanced Tone" Tape Recorders; (c) Motion Picture Equipment. Revere Camera.

30. BOOKLET: Curvamatic Splicer; details, data. Revere Camera.

31. BOOKLET: "Home Movies the New Craig Table Top Way"; 20 pp., illus.; including tips on tricks, etc. movie editing. Kalart.

LENSES

32. BOOKLETS: (a) Schneider Lenses; 10 pp., illus. (b) Schneider Additional Lenses, from 24 x 24 mm to 60 x 60 mm; (c) Xenotar; (d) Angulon; (e) Tele-Xenar; (f) Xenon; (g) Symmar; (h) Cine-Lenses, from 6.5 to 105mm; (i) Componon, Componar; (j) Xenor, general purpose lens. All well illustrated. Burleigh Brooks.

33. BOOKLETS: (a) Raptar 8mm cine lenses; (b) Raptar 16mm cine; depth of field, projection charts. Wollensak.

34. BOOKLET: How to Have More Fun with Your Camera. Wollensak.

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36. BROCHURE: Portrait Lens Instructions; tables, charts on +1, +2, +3 portrait lenses. Ednalite.

37. BOOKLET: Leica Lenses; 34 pp., illus.; data descriptions. E. Leitz.

89. TEST CHART: Showing Test of Hexanon 50mm F/2.8 lens as used in the Konica II. Konica Camera Co.

PROJECTORS, SLIDE

38. BOOKLET: How to Select a Slide Projector. American Optical.

39. BOOKLET: Features of Revere Projectors. Revere Camera.

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FLASH EQUIPMENT

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64. BOOKLET: "Flash"; data on flash for Argus cameras. 8 pp., illus. Argus.

65. BOOKLETS: Eveready Battery Engineering Bulletin on flash photography, 12 pp. illus., issued periodically. National Carbon Co.

66. BROCHURE: Eveready Batteries, data, helpful information "B", "B-C" batteries. National Carbon Co.

PROCESSING EQUIPMENT AND MATERIALS

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68. LEAFLETS: (a) Time-O-Lite Printer; (b) Time-O-Lite Meters and Switches. Industrial Timer.

69. LEAFLETS: (a) Nikor Developing Tanks; (b) Nikor Film Processing Machine. Burleigh Brooks.

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90. BROCHURE: Illustrating design and function of Model 45M Enlarger, 24pp., Charles Beseler Co.

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92. PAMPHLET: Discusses characteristics and operation of Model 57MB; Charles Beseler Co.

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94. BOOK: A Brief 73 Year History of Enlarger Design; 32pp. Charles Beseler Co.

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when photography is appropriate. Another federal judge in the State of Washington has permitted pictures to be taken in his courts in non-jury trials in order to better acquaint the public with the processes of justice.

"Encouraging experiments such as these have suggested the desirability of 'another look' at Rule 35. I understand that a Committee of the American Bar Association presently has the matter under review and will unquestionably give it serious attention.

"These are the orderly ways by which changes may be made to accommodate the needs of a free press and a free people. Each abuse of freedom constitutes another setback to it. The cause of freedom of the press—just as any other worthy cause—is won through lawful, orderly, and considered action."

But there are a number of considerations which the Attorney General did not mention. The first is that although Canon 35 has been applied as effectively as any law on our statute books, it is NOT a law, but rather a simple rule of ethics voluntarily adopted and imposed on the courts and the American people who own them, by a private professional self-interest society, the American Bar Association; that the adoption of Canon 35 was not, as urged by the Attorney General, through "lawful, orderly, and considered action." The Utah District Judges Association has asserted that Canon 35 "was adopted without the full consideration of the views of those who opposed it" and recommended that the Utah State Bar and the Utah Supreme Court reconsider Canon 35, "at a time when newspapers could present their views," pointing out that "a basic principle of law and the courts is to grant full hearings in all matters to those most vitally concerned." And finally, that one of the most influential members of the ABA Committee that "presently has the matter under review," is none other than United States District Judge George H. Boldt, who wrote a four-page article for the January 1955 *ABA Journal* against amending Canon 35. Judge Boldt can hardly be considered to have an open mind on this subject.

Mr. Brownell's belief that Canon 35 is unrealistic and far too stringent in the light of present technological advances in photography is shared by many legal officers throughout the country. The record shows that many judges have been persuaded to permit press photographers to cover trials of great public interest. In every such instance, both the attorneys for the people and the defense, as well as the judges, have agreed that the taking of news pictures in the manner prescribed by the NPPA in no way detracted from the dignity of the proceedings, and that neither the interests of the people or the accused were jeopardized.

Today the need for a re-examination of Canon 35 and its revision in the public interest is receiving more and more attention from judges, lawyers, bar associations, editors, publishers, and other professional associations such as the American Society of Newspaper Editors, Sigma Delta Chi, and Kappa Alpha Mu.

Many publications have joined the criticism by bringing objective reports on the controversy to the attention of the general public. Newspapers continue to run news stories and editorials praising local judges who, understanding the problem in the light of modern progress, permit news pictures of important trials. The results in every case have justified the propriety of the judge's discretion.

Perhaps the words of Federal Court Judge Johnson J. Hayes express the opinion of all those in the judiciary who champion the cause of courtroom news photography. At a Freedom of Information Clinic in North Carolina, Judge Hayes said in part: "The court's inherent power to preserve order in the courtroom ought to be weighed in the light of the public's right to full information concerning trials." And further, "As a citizen of the United States, I firmly believe that our government was established to secure to all of us life, liberty, and the pursuit of happiness, deriving its just powers by the consent of those who are governed . . . I am unable to see why freedom of the press which, when it was included in the law of the land, was the recognized medium for the dissemination of information, should be restricted to the instrumentality of the print shop; a liberal interpretation would extend the guarantee to the radio, photography, and television."

But although many judges have argued in the same vein for the past eight or nine years, the American Bar Association continues to press for the adoption of Canon 35 by more of the state bar associations.

Canon 35 is as archaic in its thinking as its wording is unbecoming to the great profession it represents. Since it states that "the taking of pictures in court is *calculated* to detract from the essential dignity . . . degrade the court, and create misconceptions . . . in the mind of the public," one cannot help asking: "Calculated by whom?"

Many judges and law makers disagree with this fallacious line of reasoning, not based on facts. They feel that news photography in the courtrooms would bring to the American public more accurate reports of the tribunals, but few of these dare to oppose the old diehards by publicly favoring press photography.

It is true that originally there was good reason for banning pictures in courtrooms. Large, bulky cameras, flash powder which went off like a miniature atom bomb, tripods, etc., made this prohibition then necessary. But this condition is not true today.

As Max Ehrlich, prominent New York attorney who has the courage of his convictions, pointed out in discussing this problem at the Brooklyn Bar Association, "When the reason for a law perishes, the law itself perishes."

Mr. Ehrlich was quoting the learned Mr. Justice Benjamin N. Cardozo in "The Nature of the Judicial Process," who said, "I think that when a rule, after it has been duly tested by experience, has been found to be inconsistent with the sense of justice or with the social welfare, there should be less hesitation in frank avowal

and full abandonment." Yet it is those who guide this same legal profession today who refuse to see the logic of this forthright thinking."

What are the new photographic tools that have made unobtrusive picture making practical? Small, miniature cameras with interchangeable high-speed lenses PLUS modern high-speed films which are capable of being exposed under indoor available-light conditions at effective film speeds exceeding 1,000! Both over-all views and close-ups are possible with this type of equipment, since the cameraman can work unnoticed. Most important of all, he can capture his subjects with instantaneous "snapshot" exposures requiring as little effort as outdoor box camera snapshot making in the not so distant past.

The demonstration we put on for Mr. Brownell and other honored guests at Colorado Springs overcame the difficulties of courtroom photography with the very type of equipment and materials the news photographer ordinarily uses in the court. The men who took the pictures of Mr. Brownell at the lectern and of the associated proceedings at the banquet were Floyd McCall, Dave Mathias, Fred Mazzulla, and Ira Sealy—all NPPA members from Denver, Colorado—and Gene Anderegg of the Leitz organization.

In order to further point up the difference between modern camera techniques and those of the "horse and buggy" era when Canon 35 was adopted, the Attorney General was told at the end of his speech, that he was to have his portrait taken. At this point Harry Rhoads, an NPPA member who has been a news photographer for more than 50 years appeared with an old-fashioned view camera, complete with focusing cloth, large wooden holders, and wood alcohol-burning flash gun. Toastmaster George Yates struck a match to permit Rhoads to focus on his ground glass. This was at long last followed by the usual introductions to "hold still" and the inevitable blast of flash powder and shower of sparks. It was a fitting climax to a wonderful speech and the successful conclusion of another demonstration in the NPPA's carefully planned campaign for freedom of the news camera. The Attorney General graciously conceded that we had "made our point."

"The Department of Justice is also concerned with protecting the press photographer and other newsmen against unlawful state interference and arbitrary local police action. Last year the Department obtained a conviction of the police chief of Newport, Kentucky, for violating the Civil Rights Act. The defendant was fined $1,000. He had seized the camera of a photographer of the *Louisville Courier Journal*, destroyed the films taken during the course of a gambling raid, and then arrested and jailed the photographer. This is believed to be the first civil-rights conviction against unlawful state interference with freedom of the press. The precedent established by this case will make it clear that violation of the press photographer's civil rights will not be tolerated."—

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what's new — Trade Notes and News

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CAMERAS & ACCESSORIES

REMBRANDT MASTER PICTORIALIST camera features an oversized lensboard for full 8x10 exposures which accepts a line of reducing backs for smaller negatives, down to lantern-slide size. For behind-the-lens shutter there are built-in air, as well as electrical connections for synchro. No special tools required for installation. Bellows extend from seven to 30 in. Burke and James, Inc., 321 S. Wabash Ave., Chicago 4, Ill., announces the price at $139.50, less lens and shutter.

PARALLAX CORRECTOR for twin-lens reflex cameras is announced by Noll Products, 837-6 N. 12th St., Reading, Pa. Used with close-up lenses on the camera, it raises the taking lens to viewing lens position after focusing, and is adjustable to all twin-lens reflex cameras. Finished in brown crackle, the price is $5.95, ppd. with a money back guarantee.

UNDERWATER HOUSING for the Argus C-3 camera is announced by Seahawk Products, 1560 Placentia Ave., Coral Gables, Fla. Construction is of ⅜-in. Plexiglass. Film advance, lock, shutter release, and shutter-cocking controls have Neoprene "O" packing. Price is $69.50, fob Miami.

WALZ POCKET RANGEFINDER measures distances by means of super-imposed images. When images overlap, distance can be read. Available in graduations reading in either feet or meters, price is $6.95. Distributor is U. S. Photo Supply Co., 1204 G St. N.W., Washington 5, D.C.

LENSES & ACCESSORIES

CINEMASCOPE LENSES for 16-mm projectors are announced by Bausch & Lomb Optical Co., Rochester, N. Y., as major film studios have indicated they will shortly release recent CinemaScope films in 16-mm prints. With an adapter supplied, the lens replaces the regular projection lens. The unit is priced at $124.50.

CONVERTERS for telephoto and wide angle effects with the *f*/2.7 and *f*/1.9 Brownie movie cameras are announced by Eastman Kodak Co., Rochester, N. Y. The Telephoto Converter gives the advantage of an effective 24-mm lens; the Wide-Angle Converter gives the advantage of an effective 9-mm wide-angle lens; and both attach to the regular lens on the camera. Prices are $18.50 each and include a finder element for the front viewfinder.

VUPA stands for Vistascope Universal Projector Adapter, which is used for attaching the 16/35-mm Vistascope lens to all popular 35-mm slide projectors. The adapter consists of an aluminum ring with three side flanges with holding screws. Each screw is tipped with a nylon edge to prevent scratches on the projector lens barrel. Price is $9.95. More information from Vistascope Corp., 100 Central Pk. South, New York 19, or from dealers.

ZEISS-TESSAR LENSES, for photography, enlarging, and projection, will soon be available, announces Carl Zeiss, Inc., 485 Fifth Ave., New York 17. The 75-mm Zeiss S-Tessar *f*/4.5 lens in standard mount N has an angle of view of 40 degrees and is recommended for a negative area of 30x40 mm. The 105-mm Zeiss Tessar *f*/3.5 lens in standard mount N or in Synchro-Compur shutter MX/CRO with a built-in self-timer has a 55-degree angle of view and covers a negative area up to 2¼x3¼ in. Prices are, respectively, $68, $75, and $87. Orders may be placed with Zeiss Ikon dealers for delivery when available. Each lens is engraved "Carl Zeiss" and is made in West Germany.

16-mm VIDOSCOPE LENSES for anamorphic motion pictures and projection are claimed to improve picture clarity and eliminate distortion. Screw mountings are supplied for attachment to projectors. Special adapters are available for attachment to 16-mm Jan or Bell & Howell professional projectors and for attachment of 35-mm Vidoscope lens on these projectors in limited "throw" areas. Price is $195. Write Walter Futter, 625 Madison Ave., New York, for more information.

EXPOSURE METERS

POLYCO photoelectric meter is a conversion reading type featuring full-scale reading without masks. After meter is pointed at subject, value on corresponding dial is set opposite ASA film speed and combinations of lens openings and shutter speeds are read off of opposite side of dial. A chart is supplied for conversion of ASA to Weston or Din ratings. Future models will feature an LVS scale. Distributed by Hanimex (USA) Inc., 593 Market St., San Francisco 5, the price is $7.95; case, $1.

WALZ-MINOR photoelectric meter measures daylight and artificial light; gives direct readings calibrated in ASA exposure indexes from 4 to 400; has shutter speeds from four to 1/000 sec and lens stops from *f*/1.4 to *f*/22; has shifts from high to low range for readings in bright or dark locations. Price is $12.95, incl. leather case and neck strap. Distributor is U.S. Photo Supply Co., 1204 G St. N.W., Washington 5, D.C.

BERTRAM BEWI-AUTOMAT A is a direct reading meter which gives nine combinations of lens and shutter speeds, when the unit is aimed and a button is pressed and released. It holds the settings until a new reading is taken; can be used for stills, movies, color and black-and-white films; incident and reflected light; is equipped with a set of light value numbers for the Compur LVS shutters. Computations can be made on ASA, Din, or Weston ratings. Price is $29.50, complete. More information from Willoughbys-Wholesale, 110 W. 32nd St., New York 1.

ARGUS L3 is an "instant reading" exposure meter for still and movie cameras. For incident- or reflected-light readings, a twist of a dial gives combinations of shutter speeds and lens openings, from *f*/1.4 to *f*/22. Exposure-index calibrations are ASA. Price, including case, is $16.95. Manufacturer is Argus Cameras, Inc., 405 Fourth St., Ann Arbor, Mich.

FILTERS & ACCESSORIES

KODAK ND-3 is the name of a neutral density filter for use with 16-mm Tri-X CP Reversal Film. Light reduction is equivalent to three lens stops, claimed to make possible picture taking in bright sunlight with lens and shutter adjustments found on most fixed-shutter-speed home-movie cameras. Available in six Series sizes (three of

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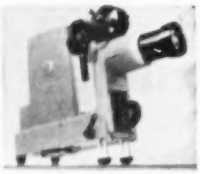
which fit Kodak Combination Lens Attachments), prices start at $2.65 for a Series IV filter. Manufacturer is Eastman Kodak Co., Rochester 4, N.Y.

CARRYING CASES for filters and lens hood are announced by U.S. Photo Supply Co., 1204 G St. N.W., Washington 5, D.C. The case will hold combinations of five Walz screw-in filters and lens hood or five Series filters plus a Series adapter and lens hood and is made of leather with plush lining. Sizes and prices are: Ser. IV, $2; Ser. V, $2.25; Ser. VI, $2.50.

MATCHED FILTER SETS made by Enteco Industries, Inc., Brooklyn 21, N. Y., include a set of two Series V in any color for $4; a similar set of Series IV at $3.20, and a set in special slip-on mounts for Stereo Realist cameras at $5.50.

PROJECTION & VIEWING EQUIPMENT



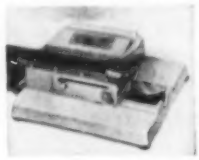
KODASLIDE SIGNET projectors are announced by Eastman Kodak Co., Rochester 4, N. Y., as available in two models accommodating single-frame filmstrip as well as 2x2 slides. Both feature a Geneva advance mechanism filmstrip feed claimed to provide accurate framing once the frame line is set. Cam mechanism automatically provides positive plate separation before the film can be advanced. The slide changer accepts 2x2 slides in any mount, feeding from the top and dropping in sequence into a receiver holding up to 25 slides. Signet 500 (watt) Model 2F with a 5-in. Ektanon f/3.5 lens is priced at $98, with an f/2.8 lens, $105; the 300-watt model with the f/3.5 lens is $86.50. A carrying case is available for $9.95.

EMDE STEREO MASKS, made of aluminum card stock, come in 18 different shapes and are used in projection to exclude extraneous picture matter. Price is $2.95 for a box of 102 masks. Manufacturer is Emde Products, Inc., 2028 Stoner Ave., Los Angeles 25, Calif.

KODAK PAGEANT audio-visual projectors are now available with a Super-40 shutter, giving increased screen illumination and flicker-free projection with sound and silent films. See **Variable Movie Projector** in the Tools and Techniques section of this issue for more details.

VICTOR SILENT 16 projector is now available with a 5-ft remote-control cord. Price of $265 remains unchanged. More information available from Victor Animatograph Corp., Davenport, Iowa.

EMDE PRODUCTS, 2028 Stoner Ave., Los Angeles 25, announces a one-piece aluminum frame for enclosing stereomount masks. Using these new frames is claimed to eliminate the task of taping or sealing old-type cardboard covers, to provide freedom from paper lint and flecks, and permanent alignment of films. Packaged 100 frames and 100 masks to the box (normal, medium, or close-up), price is $6. For users with film already masked, 100 frames are priced at $3.50. More details available.



LUTES STANDARD is the name of a 35-mm film cutter designed for amateur color photographers who mount their own processed transparencies. Once the filmstrip is inserted in guides, it automatically moves eight notches or standard ASA double frame size every time self-sharpening knife is raised. For other sized transparencies, manual operation is possible. The price is $21.95, at dealers or direct from Richard Mfg. Co., 5914 Noble Ave., Van Nuys, Calif.

FLASH

DORMITZER Electric & Mfg. Co., Inc., Cambridge 40, Mass., announces two speedlight units. Synctron DH-1B (opp.) features guide numbers of 50 for Kodachrome, 70 for Ektachrome, 250-300 for black-and-white films; 500 or more identical flashes from normal life span of batteries (replaceable at $3.05 per set); a weight of five lb; and is 7 in. high. 208B features a

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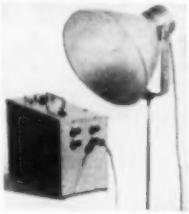


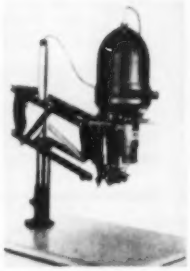
ASCORLIGHT SERIES 600 speedlights for industrial and color photographers doing large set work on location are announced in two new models. Both units have a flash tube capable of operation at 1,000 watt-seconds, 900 volts. Reflectors are detachable and can be nested together. Model AA-601 has a 500-watt-second capacity, weighs 17 lb; AA-602 has an 800 watt-second capacity, weighs 24 lb, and is claimed to have a light output comparable to 1,000 watt-second light units weighing 60 lb. Prices are, respectively, $448.50 and $558.50. More news from American Speedlight Corp., 63-01 Metropolitan Ave., Middle Village 79, L. I., N. Y.

HANDI-PAK BATTERIES are 6- or 12-volt power units for operating speedlights and electrically driven movie cameras. Corrosion-resistant case houses battery, built-in charger, plug-in jack, and storage space for accessories. Prices range from $38.95 to $53.95. More information available from Reading Batteries, Inc., Reading, Pa.

KOILED KORD for Argus C3 cameras measures three ft when extended, is fitted with a household-type plug for Heiland-type battery cases, and with a prong-type plug for Kalart flashguns. Price is $1.98 from Spiratone, Inc., 49 W. 27th St., New York 1, N. Y.

SYLVANIA ELECTRIC Prod. Inc., 1740 Broadway, New York 19, announces new design and construction features on its M-2 flashbulbs. Wire leads are now set in shock-resistant glass for rigidity; the bulb is now of a more nearly rectangular shape, claimed to provide a better distribution of fill inside the bulb; redesigned base for better gripping power. The bulbs are priced at nine cents each.

DARKROOM EQUIPMENT



PRIMOS 2¼x2¼ AUTOFOCUS is an all-metal-body double-condenser enlarger. A focus adjustment rod allows automatic focusing with any type of enlarging easel. Parallelogram mechanism supports the enlarger head with heat-absorbing base and can be operated with one hand. The 75-mm Schneider Componar f/4.5 lens may also be used with 35-mm negatives for up to 8½x magnification. Illumination supplied by an adjustable 150-watt opal bulb. Price, incl. lens, red filter, and distortion corrector, $199. A 50-mm Schneider Componar f/4.5 lens for 14x magnification, a 35-mm negative carrier, and a filter drawer are available as accessories. Distributor is Karl Heitz, Inc., 480 Lexington Ave., New York 17.

SIMMON BROS., 30-28 Star Ave., Long Island City 1, N. Y., announces modification and new names for the 2¼x3¼ Omega B-6 and Automega B-5 enlargers. Cantilever girders have been redesigned and the new names are Omega B-8 (illus.) and Automega B-7. The B-8 is manual focusing; can make prints up to 16x20; has matched condensers; and will take lenses in focal lengths from 2 to 3½-in. The B-7 features automatic focusing; accepts three lenses of varying focal lengths, matched to special floating tracks. Prices are, respectively,

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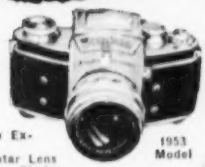

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35mm f3.5 Summaron	59.50	300mm f4 Sonnar Pre-set	258.50
85mm f2.8 Steinheil	49.50	35mm, 90mm, 135mm finder	6.95
85mm f1.9 Serenar	89.50	Zeiss Universal Finder	58.50
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85mm f2 Nikkor	93.50	Tewe Universal finder	16.50
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PROCESSING RACK made of stainless steel holds up to 30 reels of 135, 828, or 127 film; 18 of 120 or 620; and 12 of 116 or 616. It is designed for use with Nikor film reels and fits the Kodak 8x10 Hard Rubber Tank (3½ gal), or other tanks with similar dimensions. The rack is equipped with a holder for a strip of 35-mm film, for control purposes. Reels are intermixable. A product of Eastman Kodak Co., Rochester 4, price is $36.50.

FILM AND PAPER

ANSCOCHROME SHEET FILM availability is announced in five sizes from 2¼x3¼ to 8x10. They have the same exposure latitude as the recently introduced 35-mm and roll-film sizes of this high-speed color film. Both Daylight and Tungsten (balanced for 3200 K lamps) Types are available. Processing is done with the Anscochrome Developing Outfit, commercial processors, or Ansco, Binghamton, N. Y. Each box contains 10 sheets of film and the 4x5 size is priced at $7.69, processing not included. More information from Mr. Kenneth Johnson, Ansco News Bureau, 175 Clinton St., Binghamton, N. Y.

ARDURA BRILLIANT, a warm-toned, high-speed enlarging paper is an addition to the existing Ardura Kashmir (K) and Silk (Y) surfaces recently introduced by Ansco, Binghamton, N. Y. The surface is finely stippled with high sheen for portrait and wedding prints; the speed is four times that of its companion, Ansco Indiatone. Ansco claims it to have excellent gradation with wide exposure and developing latitudes, and resistance to OA (yellow-green) safelight fogging. It is available in double-weight stock in full range of sheet sizes from 2¼x3¼ to 20x24 in. and in popular sizes of double-weight rolls. Prices of 8x10 size are $3.95 for 25 sheets and $11.95 for a box of 100.

LIGHTING EQUIPMENT

COLORTRAN MIROFLECTOR is a reflector claimed to increase light output as much as 200 to 300 percent through a special anodizing process producing a highly refractive finish resulting in whiter light. Three springs maintain contact with the lamp, dissipating heat through the Miro-Flector, making the lamps run cooler and with less apparent darkening. Made in four sizes, prices start at $2.65. Complete information from Natural Lighting Corp., 612 W. Elk Ave., Glendale 4, Calif.

ASCOR LIGHT-WEIGHT STANDS designed for Ascor speedlights but adaptable for any lights are now available. Three stands and a side arm attachments are included. CS-201 has five sections, folds to 24½ in., extends to 10 ft, weighs 35 oz.; CS-202 is designed as a back-light stand, has a minimum and folded height of 14 in. but can extend to 52 in., weighs 19 oz. CS-203 is a tilting boom stand with a two-section four-ft tilt arm for getting light out and over the subject; extends to seven ft and can be used as a regular stand when the tilt arm is in a vertical position, with a maximum height of 11 ft; weighs 42 oz. CS-204 is an adjustable side-arm attachment for positioning light unit at any position between minimum stand height and floor; attaches to stand tubing and is adjustable to any height. Prices are, respectively, $19.95, $11.95, $32.95, and $2.50. Manufacturer is American Speedlight Corp., 63-01 Metropolitan Ave., Middle Village 79, L. I., N. Y.

PROCESSING SERVICES

TRI-X REVERSAL FILM PROCESSING is announced by Superior Bulk Film Co., 442-450 N. Wells St., Chicago 10, who promises to process the film within 24 hours after receipt and to ship it the day after its receipt by its laboratory. During the football season, a special weekend service is in force. The charge for reversal processing is $2.50 per 100 ft, plus postage.

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dealers. Pavelle Color Inc., 533 W. 57th St., New York 19, announces the charges (per roll) as: $1 for sizes 120 and 620; $1.25 for 20 exp and $2.25 for 36-exp 35-mm cartridges, mounted; $1.25 for 35-mm (single frame Mercury), unmounted; and 95 cents for size 828 film, mounted.

SOUND PROJECTION EQUIPMENT

TR670 is the model number of a tape recorder introduced by Crescent Industries, Inc., 5900 W. Touhy, Chicago 31. Among features are dual track recordings; 90-sec rewind; one operating control for record and play, and one each for volume and tone; 20 lb. weight. Price is $99.95, incl. microphone, take-up reel and a reel of tape. Model TR672 (illus.) features two speeds; dual-track recording; up to two hours of recording time; tape storage space; and portability. Price is $119.95 Model TR673 is a somewhat similar recorder, but is hi-fi. Price is $149.95.

MISCELLANEOUS

SEQU-MATIC is the name of a slide file with a combination index, one for instant finding of group slides and the other itemized for instant location of any one slide. Measuring 9½x7¾x 5 in., it can hold up to 800 slides in cardboard mounts. Pyrozylin-coated fabric covers the plywood carrying case which holds 10 individual files, one punch, one index, and space for unfiled slides. A product of Pierce Electric, P.O. Box 122-B, Medford, Ore., the price is $15, ppd. for the complete unit.

SUPERHOLD CRAFTSMENS KIT contains a plastic glue and accessories for bonding paper, wood, glass, plastics, etc; for filling leaks in bellows and trays; and for joining frame corners. Ordinarily transparent, it can be mixed with pigments for staining or for opaqueness. Louis Labs., 175 W. 97th St., New York 25, claims it to have a strength of over 2,000 lbs per sq in. and resistance to most chemicals and solutions. Price is $1.20. More information available.

EXCELLO SENSITIZED CANVAS for photographic oil portraiture is announced as being non-cracking when instructions are followed. Available in four roll sizes 15 ft long by 16, 20, 24, and 40 in. wide, prices start at $20 per roll, including a test strip. General Photo Mfg. Co., Inc., Andover, N. J., offers a detailed instruction sheet on the process.

STAR-D TRIPODS, models D-21 Meteor and D-22 Comet are added to the tripod line of Davidson Mfg. Co., 2223 Ramona Blvd., West Covina, Calif. Both feature the Swing-Over action head for swinging the camera from horizontal to vertical position, similar in viewing to a rotating back on a camera. Head is locked by a quarter-turn of the control lock. The D-21 ($17.50) is a three-section standard tripod while the D-22 ($22.50) is an elevating model.

PHOTO GREETING CARD folder is available from Chemipure Labs, 170-06 Hillside Ave., Jamaica 32, N. Y. Described are Christmas and year-round masks; Christmas and Thank You folders; and a French four-fold production kit, consisting of layout worksheets, and 8x10 set of designs on film, and instructions. Prices are, respectively, $1 each, or 10 for $8.95; 10 cents each incl. env. (sample assortment $1); $2.95.

TITLING KITS containing three-dimensional letters and numerals are announced by Micro Sign Prods., 2909 Santa Monica Blvd., Santa Monica, Calif. Sizes range from ¼- to 2-in. and are available in three

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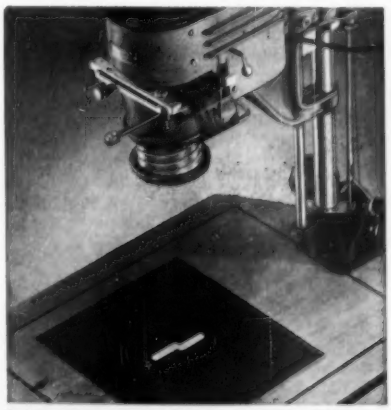

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JEN-DIP guide chart requests should be addressed to Jen Products Sales Co., 421 W. 42nd St., New York 36. The address which appeared in the September 1955 issue of this section was incorrect.

PHO-T-PHO ADAPTOR, an attachment allowing the use of a cable release and/or timer on Kodak Duaflex cameras (see this column, July issue) has been reduced in price, from $1.39 to 99 cents. Manufacturer is Studio City Camera Exchange, 12174 Ventura Blvd., Studio City, Calif.

CHANGE OF ADDRESS. Karl Heitz, Inc., formerly at 150 W. 54th St., New York, is now located at 480 Lexington Ave., New York 17.

RIPODEX BOOK ALBUM features self-adhesive pages eliminating paste or mounting corners; parchment paper between pages for print protection; stay-flat pages with hard surfaces to take ink, crayon, watercolor, etc., in titling. Measuring 7¼ x 8¾, they are available in red, green, blue, and brown covers with gold embossing. Price is $6. Details available from Rayelle Pub., 5700 Oxford St., Philadelphia 31.

PAR PRODUCTS CORP., 926 N. Citrus Ave., Hollywood 38, Calif., announces a price reduction on the Par Fade Attachment for the B&H Model J 16-mm printer. The new price is $624.50 (installation extra), a reduction of $103. More information is available from Par.

VISTASCOPE CORP., 100 Central Park S., New York City, offers a series on vision, to introduce its Vistascope lens system. Prices of these anamorphic units start at $75. The series is available without charge.

COLOR PRINTS or transparencies from 11x14 to 40x16 in. are announced by Color Laboratory Div., Room 351, Judge Studio, 954 Liberty Ave., Pittsburgh, Pa. Charges depend upon the size of the blow-up; a 30x 35-in. print is priced at $15.75. Write for price literature or quotation on an individual order.—

Get Set for Winter Sports

(Continued from page 107)

you may want stronger contrast between dark sky and brilliant snow. Particularly in snowscapes or shots of snow formations against the sky, an orange (G15) or red (A25) filter will give the desired effect. Adjust your lens opening accordingly; for the red, you must open up three full stops. The light-green (X1) filter, which withholds slightly more light than the medium-yellow (K2) gives pleasant flesh tones in informal portraits which tend to go white with yellow, orange, and red filters.

Snow eliminates the need for reflectors in outdoor portraiture; it illuminates shadows beautifully and models features. Even on dull days (the only exception to rule 3 above) you can take flattering, softly lighted portraits of women; use a wide lens opening to cut out undesirable background. Reflex cameras assure sharp focus in this type of work; so do the newer 35's with combined rangefinder-viewfinder.

In order to take consistently good ski action photos, get up high on the mountainside. Suitable spots for still pictures are few and far between; find them. Plan the pictures with your subject. Have him dress in dark-colored clothes that will stand out against the snow and sky. Have him ski slowly and precisely, so that you can snap the shutter at exactly the right instant; he will appear to be moving fast enough in the picture. Avoid photographing your subject against a dark or cluttered background. A speed of 1/250 is fast enough for most ski-action shots, except when the subject is roaring right past you at right angles to the camera-lens axis.

No matter how steep it is in actuality, a snow slope tends to photograph flat. A good way to avoid this is to show the profile of the slope against the sky or a dark background; have your subject do his stuff on or just above this steep pitch. Small figures in the distance help. Never point the camera uphill; across the slope is best, or down the slope if there are spectators, buildings or other landmarks to convey the steepness of the slope. Long-focus lenses help overcome flattening. With telephoto lenses you can reduce the size of your subject in comparison to the background — make the mountainsides loom up behind him.

Favorite subjects for ski photos are the geländesprung—a between-the-poles jump that is performed almost exclusively for cameramen—and backlighted plumes of powder snow. Take the jump from below and slightly to one side. For the powder snow shot, wait till late afternoon; shoot almost directly into the light, with a tree or other convenient opaque object between the lens and the sun; underexpose slightly You'll get dramatic contrast between the dark form of the skier and the brilliant plume of snow behind him.

Skiers make the best ski photographers, since they can ski along with their subjects, stopping whenever a favorable opportunity for a picture presents itself.

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Thirty-five millimeter cameras are preferred because of their lightness and compactness; many offer the advantage of interchangeable lenses. A skiing photographer usually carries his camera or camera bag on his chest by means of a neck strap and auxiliary strap around his body.

Skiing is a "three-dimensional" sport; the terrain affords plenty of variety. Skating, however, is "two-dimensional," and it is up to the photographer to find interesting angles to shoot from. To shoot a leaping figure skater against the sky, the camera should be held low and pointed upward. Other skating figures are better taken from above. Here, too, telephoto lenses are a boon—within limits. An eight-inch lens pointed from the grandstand will make your skater look like a paper doll stuck to the sidewalk.

In photographing sports and events that are performed over a set course—downhill and slalom races, bobsledding, tobogganing, speed skating and ski jumping—you can't plan the pictures with the subject. It's up to you to find the best vantage points. On a bobsled run, you'll want to catch a sled speeding near the brink of a high curve Ski jumpers you'll want to take from below and slightly to one side for that "floating" effect. Ski races you'll want to photograph at the most critical and exciting parts of the course. Particularly in shooting ski races a good sequence camera—e.g., the 400-shot Robot Royal—will assure your getting the split-second pose you want.

Condensation is a problem at temperatures below freezing. The slightest fog or water on the lens will spoil your pictures. If condensed moisture freezes on your lens, warm the camera next to your body till the ice melts. Then wipe off what you can and let the rest evaporate. The best system is to keep your camera inside your jacket except when you are actually taking pictures. In this regard, one of those insulated picnic bags will prove an invaluable accessory. They are capable of keeping equipment warm for hours on end.

The vast majority of winter-sports pictures can be made at temperatures well above zero F. When you attempt to work in the extreme cold, under below-zero conditions, your problems multiply. Film becomes brittle; shutters stick; focusing threads freeze, and flash batteries go dead. Equipment care in extremely cold temperatures is a special subject by itself, beyond the province of this article. If you must take pictures under such conditions, first consult the instructions that come with your cameras A careful perusal of Kodak's *Wintertime Picture Taking* (25 cents) will also prove helpful. By and large, the solution is to keep the camera and batteries warm with chemical heating pads, or, if the camera is to be used extensively out-of-doors, to have it winterized and kept in a cold locker outdoors until your cold-weather shooting is concluded. As for film hygiene, the main idea is to advance the film or pull the film pack tabs slowly and carefully to prevent breakage and to avoid going from the cold outdoors to the warm indoors and back again.—■

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All Lenses Latest Models, Coated. We are not permitted to advertise their famous names. Manufactured in Germany, Italy, France, and Japan. Complete information is available upon request. When ordering, please specify with which camera the lenses will be used.

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38mm f5.7	26.25	150mm f3.5	98.95
40mm f4.5	37.10	150mm f2.3	206.25
40mm f3.5	41.25	150mm f5.5	41.95
50mm f1.9	67.50	150mm f1.8	250.75
50mm f1.5	123.75	165mm f3.5	146.25
50mm f3.5	26.25	180mm f4.5	72.00
50mm f2.8	60.00	180mm f5.5	59.95
50mm f2	72.25	180mm f2.8	296.25
55mm f1.9	119.65	180mm [illegible]	146.25
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85mm f1.5	134.65	300mm f5	146.25
85mm f2	93.35	300mm f3.5	270.00
85mm f2.8	48.75	300mm f5.6	121.45
90mm f4	29.00	360mm f5.5	112.10
90mm f1.8	112.10	400mm f4.5	270.00
90mm f3.5	65.25	400mm f5	103.75
100mm f2.8	52.48	400mm f5.5	149.50
100mm f3.5	65.25	400mm f5.6	108.95
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105mm f4.5	18.95	500mm f8	356.25
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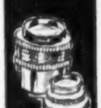

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35mm f2.5	112.10	135mm f2.5	134.65
35mm f3.5	83.70	135mm f4	56.25
35mm f3.2	70.50	135mm f3.8	90.25
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50mm f2	93.75	150mm f2.3	310.75
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50mm f3.5	42.75	180mm f5.5	98.95
50mm f1.1	337.50	180mm f2.5	298.50
85mm f1.5	148.65	200mm f4.5	117.00
85mm f2	93.40	250mm f5.5	93.35
85mm f1.9	127.50	300mm f5.6	97.50
85mm f2.8	83.50	400mm f5	414.00
90mm f2.5	70.95	500mm f5	412.50
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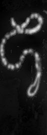

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50mm f1.5	131.25	300mm f4	499.00
50mm f2	93.75	300mm f5.6	112.50
50mm f1.1	337.50	300mm f5	146.25
50mm f3.5	46.50	400mm f5	103.75
85mm f4	70.50	400mm f5.6	179.95
85mm f2	131.25	500mm f5	408.75
85mm f1.5	224.65	500mm f8	622.25
90mm f3.5	63.75	600mm f5.6	521.25
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Contax D, Biotar 58mm f2 PS	122.00
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Calendar of exhibitions

* Conducted according to the recommended practices of the Photographic Society of America.

11th International Color Slide Exhibition, Chicago Color Camera Club, Chicago, Ill.
Closes October 10, 1955.
Entry fee and number of prints on request.
On exhibit at Museum of Science and Industry October 30 and November 5 to 6, 1955.
For information and entry blanks, write Frances Hutton McGuown, 8 South Michigan Ave., Chicago 3, Ill.

Photographers' Exhibit Society's 4th International Color-Slide Salon, Cleveland, Ohio.
Closes October 10, 1955.
Entry fee $1.25, four slides allowed.
On exhibit in Cleveland, October 31 through November 11, 1955.
For information and entry blanks, write Mary-Jane Matheson, 12317 McGowan Ave., Cleveland 11, Ohio.

Arizona Fair Exhibition of Photography*, Phoenix, Arizona.
Closes October 12, 1955.
Entry fee $1.50, four prints; $1, four slides.
On exhibit at Arizona State Fair Grounds, Phoenix, Arizona, November 4 through 13, 1955.
For information and entry blanks, write Arizona State Fair, Phoenix.

2nd International and 21st Annual Exhibition, The Photographic Society of Ceylon, Colombo, Ceylon.
Closes October 14, 1955.
No entry fee, four slides and/or prints allowed.
On exhibition at 113, Steuart Place, Colombo, Ceylon, November 12, 1955.
For information and entry blanks, write S. G. Nazzari, Esq., Ceylon Tobacco Co., Ltd., P. O. Box 18, Colombo.

International Festival of Photographic Art—Brussels 1955, Photo-Ciné-Club-Boitsfort, Brussels, Belgium.
Closes October 15, 1955.
Entry fee $1, four prints allowed.
On exhibition in Brussels, January 1, 1956.
For information and entry blanks, write R. Besard, 465, Avenue Reine Astrid, Crainheim, Belgium.

1st Biella International Monochrome Prints and Color Slide Exhibition*, Cineclub Biella, Biella, Italy.
Closes October 15, 1955.
Entry fee on request, four prints or four slides allowed.
On exhibit at Cineclub Biella, via della Vittoria 31, Biella, Italy, November 4 through 14, 1955.
For information and entry blanks, write Cineclub Biella at the above address.

15th Victoria International Salon of Photography and Color Exhibition*, Victoria Camera Club, Victoria, B. C., Canada.
Closes October 15, 1955.
Entry fee $1, four slides allowed; $1.50, four prints.
On exhibit at Arts Centre of Greater Victoria, November 13 through 20, 1955.
For information and entry blanks, write James A. McVie, Salon Director, 2171 Bartlett Avenue, Victoria, B. C., Canada.

3rd International Color Slide Exhibit*, Fine Arts Camera Club, Evansville, Indiana.
Closes October 17, 1955.
Entry fee $1, four slides allowed.
On exhibit at Evansville Public Museum, October 20, 1955; Washington Grade School Auditorium, November 10.
For information and entry blanks, write Fine Arts Camera Club, 6 S.E. 8th St., Evansville, Indiana.

6th Annual Wisconsin To-day Exhibition, State Historical Society of Wisconsin, Madison, Wis.
Closes October 17, 1955 (entry forms); October 22, 1955 (photographs).
Entry fee on request, twelve prints or slides allowed.
On exhibit at State Historical Society of Wisconsin, 816 State St., Madison, Wis., November 5 through December 3, 1955.
For information and entry blanks, write State Historical Society of Wisconsin at the above address.

10th Hong Kong International Salon of Pictorial Photography, The Photographic Society of Hong Kong.
Closes October 25, 1955.
Entry fee $1, four prints allowed.
On exhibit at Alliance Francaise French Bank Bldg., Hong Kong.
For information and entry blanks, write Tom Chan, Salon Secretary, 8, New Eastern Terrace, 2nd Floor, Causeway Bay, Hong Kong.

15th Annual Exhibition of Nature Photography, Ohio Falls Chapter of the Kentucky Society of Natural History, Louisville, Kentucky.
Closes October 31, 1955.
Entry fee $1.50, four prints or four slides allowed.
Exhibition dates to be announced.
For information and entry blanks, write Kentucky Society of Natural History, Box 81, University of Louisville, Louisville, Kentucky.

7th Annual Exhibition Stereo Photography, The Chicago Lighthouse for the Blind, Chicago, Ill.
Closes November 10, 1955.
Entry fee $1, four stereo slides allowed.
On exhibit at Auditorium, Commonwealth Edison Company, Chicago, Ill., December 5 through 8, 1955.
For information and entry blanks, write Henry H. Erskine, Exhibition Secretary, 1282 Sherwood Rd., Highland Park, Ill.—

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24 HOUR DELIVERY

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3 Times as Fast as Kodachrome (ASA32)
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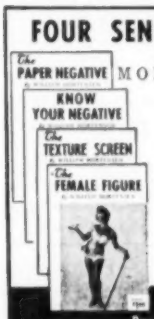

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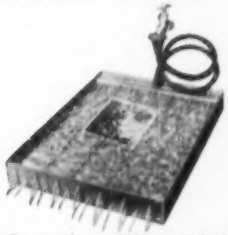

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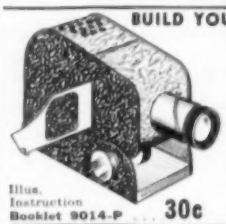

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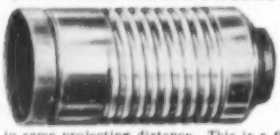

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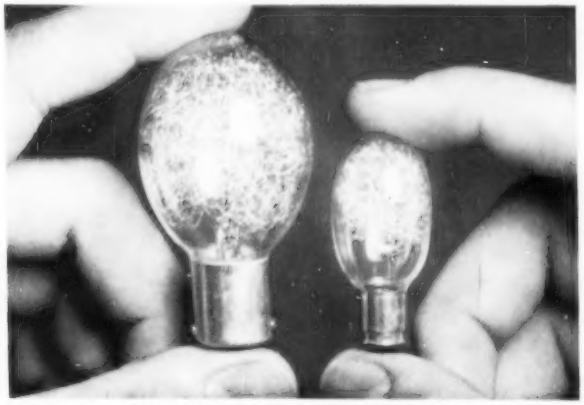
This photo, taken with G-E PowerMite M2 bulb, is as good or *better* than shot at right. And flash cost was 3¢ less. On closeups, PowerMite's powerful but softer flash prevents hot spots, makes details more distinct.

This photo, taken with a bigger bulb, is good. But flash cost was 12¢. Flash cost of shot at left, taken with PowerMite M2, was only 9¢. PowerMites are ideal for indoor and outdoor photos at 15 feet or less.



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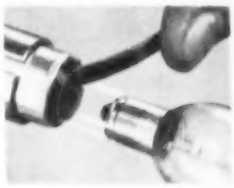

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Kodak Stereo Camera (top). Kodak Anaston Lenses, *f*/3.5 *Lumenized*. Kodak Flash 200 Dual Shutter with 4 speeds to 1/200 second plus "B." Quick-action zone focusing. Unique selector prevents exposure errors. Spirit level in viewfinder. Simplified loading; rapid crank rewind; automatic shutter cocking. Double-exposure prevention. Price, $84.50.

Kodak Signet 35 Camera (right). Kodak's finest miniature-camera lens—the Kodak Ektar Lens, *f*/3.5 *Lumenized*. Accurate coupled rangefinder combined with viewfinder. Kodak Synchro 300 Shutter with speeds from 1/25 to 1/300 second, plus "B." Ball-bearing lens mount; double-exposure prevention; automatic film stop; automatic film count. Price, $75.

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